BULLETIN

OF

THE JOHNS HOPKINS HOSPITAL

Entered as Second-Class Matter at the Baltimore, Maryland, Postoffice.

Vol. XV.—No. 156.] BALTIMORE, MARCH, 1904. [Price, 25 Cents.

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THE RELATION OF LEUCOCYTES WITH EOSINOPHILE GRANULATION TO BACTERIAL INFECTION.[1]

PRELIMINARY PUBLICATION.

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Certain bacteria (Bacillus tuberculosis, Bacillus choleræ suis) producing somewhat chronic, fatal infection in guinea pigs, cause the eosinophile leucocytes to disappear gradually from the circulating blood. After death few eosinophile cells can be found in those tissues in which they are usually present in abundance. Hence the study of tissues removed at autopsy gives little indication of the behavior of the eosinophile leucocytes during the course of bacterial infections. During more acute infections produced by inoculating bacteria into the peritoneal cavity of guinea pigs (Bacillus mucosus capsulatus of Friedländer, Bacillus pyocyaneus, Streptococcus pyogenes) eosinophile leucocytes quickly disappear almost completely from the peripheral circulation.

After the inoculation of an organism (Bacillus pyocyaneus), producing an infection from which the animal is capable of recovering, eosinophile leucocytes almost completely disappear from the peripheral circulation so that within twenty-four hours the proportion may fall from five or ten per cent to less than one per cent. The number of eosinophile leucocytes then gradually increases and at the end of four or five days both the relative and absolute number of these cells may considerably exceed that present in the peripheral circulation before inoculation. At the end of six or seven days the number of eosinophile leucocytes is again normal.

When bacteria (Bacillus pyocyaneus, Bacillus mucosus capsulatus, Bacillus anthracis) are introduced into the peritoneal cavity of the guinea pig, the large mononuclear and eosinophile cells contained in the peritoneal fluid form compact clumps which adhere in great part to the surface of the omentum, so that for a time eosinophile cells have almost completely disappeared from this fluid. At the end of about an hour they have again made their appearance. Some of the eosinophile cells normally present in the tissues of the mesentery and omentum doubtless make their way into the

[1] Read before the Johns Hopkins Hospital Medical Society, March 7, 1904.

cavity, but soon eosinophile cells begin to accumulate in the blood vessels of both membranes, but particularly in those of the mesentery. These cells adhere to the wall of the small veins and migrate into the surrounding tissue. This process begins about one hour after inoculation, reaches its maximum several hours later and is more marked the larger the quantity of bacteria introduced and the more virulent the organism employed. At the end of about four hours when the number of eosinophile leucocytes in the peripheral circulation has undergone well marked diminution, the same cells have accumulated in great number in the vessels of the inflamed mesentery and omentum. Similar changes are much less marked below the peritoneum of the abdominal wall and below the serosa of the viscera. Though eosinophile cells are migrating from the blood vessels into the peritoneal cavity their relative number in the peritoneal exudate diminishes and at the end of four hours is only one or two per cent. Polynuclear leucocytes at this time have accumulated in such immense number that they constitute an overwhelming proportion of the cells present.

Eosinophile cells are present in the cavity at the time of inoculation but only after a period of about an hour do they begin to accumulate in increasing numbers. A primary attack of eosinophile cells directed against the inoculated bacteria, such as that described by Kanthack and Hardy, has not been observed. Polynuclear leucocytes with fine granulation accumulate in great quantity upon the surface of the omentum and form compact clumps held together by a network of fibrin; eosinophile leucocytes in large number penetrate into these masses of cells. Unlike the polynuclear leucocytes eosinophile cells rarely, if ever, acting as phagocytes, ingest bacteria.

Eosinophile leucocytes upon the surface of the omentum, doubtless under the influence of bacterial poisons, undergo degenerative changes of which nuclear fragmentation is the most characteristic. In such cells the eosinophile granules are still preserved. Evidence that the cells discharge these granules has not been obtained. At a somewhat later period eosinophile leucocytes are ingested by large mononuclear cells (macrophages).

Under the influence of severe bacterial infection eosinophile myelocytes together with other elements, usually regarded as characteristic of the bone marrow, accumulate in the spleen and may be found in the blood. The occurrence of this phenomenon within from two to four hours after inoculation demonstrates that these elements are derived from the bone marrow and are not formed in the spleen. Myelocytes, both with fine and with coarse (eosinophile) granulation, which have found their way to the spleen, here multiply by karyokinetic division.

The foregoing observations demonstrate that eosinophile leucocytes have a part in the inflammatory reaction which follow the entrance of bacteria into the body. They are attracted from the blood to the site of inoculation and from the bone marrow into the blood. Destruction of eosinophile leucocytes results and is followed by regeneration.

Discussion.

Dr. Futcher.—I wish to ask Dr. Opie if he thinks these reactions in the bone marrow are due to the effect of toxines? Whether more toxines stimulate the activity of the bone marrow and an increased amount of it, or a more severe infection, causes a loss of function of the bone marrow?

Dr. Opie.—I see no other way to explain the multiplication of eosinophile cells and the degenerative changes which they undergo unless it is assumed that the parasite produces a soluble toxine. It might be suggested that the presence of the parasites themselves in the lymph glands and in the lungs could cause an accumulation of these cells; certainly this explanation is not applicable to the degenerative changes found in the bone marrow. There is no reason to believe that the parasites accumulate in the marrow, and indeed there are here no foci which may be somewhat inaccurately designated eosinophile abscesses. The observations of Calamida give evidence that there are soluble toxines in the bodies of certain animal parasites capable of causing multiplication of eosinophile cells; increase of eosinophile cells was produced with an extract that had been passed through a Pasteur filtre. My experiments with such extracts were not conclusive and did not disprove his observations. I discarded this means of increasing the eosinophile cells simply because it was difficult to obtain suitable material.

THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE URETERS, AND ITS SIGNIFICANCE IN THE MORE RADICAL OPERATIONS FOR THAT DISEASE.

By John A. Sampson, M. D.

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The treatment of any disease should be based on a knowledge both of the normal anatomy and physiology of the parts involved and also of the pathological changes in these parts as brought about by the diseased condition. On the other hand one must recognize the importance of clinical experience and that the course of treatment indicated as a result of laboratory and experimental work, may be too severe or in other ways inapplicable to human beings.

Many things must be considered in the operative treatment of carcinoma cervicis uteri. The importance of an early diagnosis is well known by many, but the difficulty comes in making the diagnosis, for frequently there are not any

symptoms referable to the disease until after the growth has extended beyond operative treatment. On the other hand, the diagnosis may be evident from the first, and patients are treated for months by their physicians with medicine and local applications until the "ulcer becomes cancerous." The result of the above is that about three-fifths of the patients who have entered this hospital suffering with cancer of the cervix, come too late for anything but palliative treatment. This condition can only be improved by impressing upon the medical profession the importance of an early diagnosis, and by having such laws regulating the practice of medicine that only those may practice who are able either to recognize that such a condition exists, or, if in doubt, will undertake measures to determine the exact cause of the trouble.

Granted that the only hope for a cure is in the removal of the growth; the next question which presents itself is, how can it best be done? Here the results of the study of the normal and pathological anatomy of the parts concerned must be combined with those of clinical experience.

Clinical experience has taught all who have studied the situation, that the operative treatment of this disease is far from being satisfactory. In this hospital we are confronted with a primary mortality of 16. + per cent, and only about 12 per cent were free from recurrence after a period of five years (Oct. 02). There have been 63 vaginal hysterectomies, with 5 deaths; 26 combined abdominal and vaginal hysterectomies, with 5 deaths; and 67 abdominal hysterectomies, with 16 deaths. The comparison of the percentage of cures and also the primary mortality in these three classes of cases is of no value, for the abdominal or combined abdominal and vaginal operation have in many instances been used instead of the vaginal operation because the growth was too far advanced for the vaginal route. It can never be hoped that the abdominal operation will be attended with as low a primary mortality as the vaginal; on the other hand, by the vaginal route the wide excision of the parametrium and pelvic lymph nodes is impossible. Whether one shall employ the vaginal route or the more radical abdominal operation in these cases, cannot be determined from statistics, for sufficient time has not elapsed since the use of the more radical abdominal operations to furnish enough cases to compare with those removed by the vaginal route.

Olshausen[1] has recently endeavored to compare the results of the two methods of operating and concludes that for the majority of cases he prefers vaginal hysterectomy. He states that he has had 671 cases, of which 31.6 and 44 per cent (two periods), were operable, with a primary mortality of 6 per cent; 74 per cent of the cases operated upon were free from recurrence at the end of two years and 38.8 per cent at the end of five years. He compares these with Wertheim's 120 cases, of which 40.3 per cent were operable, with a primary mortality of 20 per cent and 77 per cent free from recurrence at the end of two years. Five years have not elapsed since Wertheim's first cases were operated upon, so one has no way of comparing the results at the end of this time. Our results with only about 12 per cent free from recurrence at the end of five years as compared with Olshausen's 38.8 per cent, can only be explained on the ground that in the patients who were operated upon by him the growth was limited to the uterus in more instances than in our cases. The most ardent supporter of the vaginal route must admit that only those cases can be cured by a vaginal hysterectomy in which the growth is limited to the uterus. *Even Olshausen states that it is advisable to use the abdominal route in those cases in which the parametrium is involved, so that the ureters may the more safely be dissected from the cancerous tissue.*

Could one operate on cases before the growth had extended into the parametrium, then the vaginal operation would be the operation of choice, as it is the one attended with the lowest primary mortality. In view of the fact that clinical experience can count for so little, the decision as to the choice of an operation must be based on a study of the parametrium and the pelvic lymph nodes in the so-called operable cases.

Over a year ago I[2] called attention to the importance of a more radical operation as based upon the findings in the parametrium in these cases, and emphasized that it is impossible to clinically diagnose the presence of cancer in the parametrium for it may exist in minute parametrial lymph nodes which may have a diameter of not over 1 to 1.5 mm. and so cannot be palpated even after the growth has been removed. So it would seem that the more radical operation was indicated most in the so-called favorable cases, for in these there is the greatest chance for a cure.

Kundrat[3] has recently published the result of his studies of the parametrium in 80 of Wertheim's cases. An idea of the thoroughness of the work may be gained from his statement that he studied over 21,000 sections. In 44 of the cases the parametrium was found to be involved by the cancerous growth. He emphasizes that the presence of cancer in the parametrium can only be diagnosed by the use of the microscope, for an infiltrated condition of the parametrium is not necessarily carcinomatous and a natural feeling parametrium does not exclude cancer, a point which has been previously emphasized by Wertheim.[4] There is also no relation between the size of the primary growth and the cancerous involvement of the parametrium, for the primary growth may be very large and yet the parametrium may be free from cancer; on the other hand, the primary growth may be very small and the parametrium may contain carcinoma. He calls attention to the frequency of metastases to the parametrial lymph nodes as this occurred in 15 instances.

Of great significance is the relation of the involvement of the parametrium to the involvement of the pelvic lymph nodes in these 80 cases. In 32 of the 80 cases both the parametrium and the pelvic lymph nodes were apparently free from cancer. In 22 cases the parametrium was found to be cancerous, while the pelvic lymph nodes were uninvolved. In 18 cases, both the parametrium and the pelvic lymph nodes were involved by cancer. In 4 cases the parametrium on both sides was free but the pelvic lymph nodes of one side were cancerous, while in 3 other cases the parametrium of one side was cancerous and the lymph nodes of the opposite side,

and in another instance only the parametrium on one side was cancerous while the pelvic lymph nodes on both sides were involved. This latter group showed that apparently in 8 instances the growth was able to pass through the parametrium and reach the pelvic lymph nodes without the former becoming involved, while in 22 cases the parametrium was able to prevent the further spread of the disease. In other words, in 22 out of 48 operable cases in which the disease had extended beyond the uterus (for in 32 cases it was apparently limited to the uterus), the parametrium was able apparently to check the further extension of the disease, and in addition in 22 of the remaining 26 cases, the parametrium was involved as well as the pelvic lymph nodes, thus showing that the parametrium was involved in 44 of the 48 operable cases in which the growth had extended beyond the uterus. In 26 of the 80 cases the pelvic lymph nodes were involved and in 22 of these 26 cases the parametrium on one or both sides was also involved. It becomes very evident from Kundrat's work alone that the only operation justifiable is one which will permit of a wide excision of the parametrium, and this is impossible in the vaginal operation.

Wertheim,[5] realizing the importance of a wide excision of the parametrium and also of the removal of the pelvic lymph nodes, dissected the ureters free and after removing the uterus with as much of the parametrium as possible, the lymphatics were removed from the sides of the pelvis. The ureters were thus out of harm's way, but ureteral necrosis was apt to occur. In order to avoid ureteral necrosis a change[6] was made in his operation. Instead of dissecting the ureters free the parametrium was removed mesial to the ureters so as not to injure arteries which approach that portion of the ureter from the sides of the pelvis, as has been described by Feitel.[7] As a result, ureteral necrosis occurred in only two instances in his next 30 cases, as compared with 5 cases, 3 of which were double, thus making 8 instances in the previous 30 cases. In these 2 cases in which it occurred, the growth was adherent to the ureter and it became necessary to dissect the ureter free, and necrosis resulted.

It must be conceded that hysterectomy alone cannot cure the disease but that there must be a wide excision of the parametrium in order to get outside of the growth in over half of the cases, and again the pelvic lymph nodes must be removed for they are involved in at least 30 per cent of the operable cases. The greatest obstacle to the wide excision of the parametrium is the ureter, for it passes through the tissue which should be removed.

The indications for the treatment of the lower ends of the ureters must come from a study of the parametrium about the ureters in the so-called operable cases, combined with what may be learned from clinical experience. The justification of any course of treatment suggested from the above, must be tested by the results of anatomical studies, experiments on animals, and finally, clinical experience.

Clinical Manifestations of the Relation Between Carcinoma Cervicis Uteri and the Ureters.

Clinically, the relation between cancer of the cervix and the ureters manifests itself in two ways.

First, in the more advanced stages of the disease the extension of the growth out into the parametrium, soon reaches the ureter and that duct becomes compressed, resulting in renal insufficiency, and one may find reported in the literature various palliative operations in order to relieve this condition; as, nephrotomy, bringing the ureter out on the skin, and also resecting and reimplanting the ureter into the bladder above the growth.

This relation manifests itself, secondly, in the frequency of accidental injuries to the ureter in hysterectomy for carcinoma cervicis uteri. When the parametrium is apparently involved by the carcinoma and the surgeon desires to get outside of the growth, unless great care is taken, one or both ureters may be injured. Since the opening of the Johns Hopkins Hospital in August, 1899, until January 1, 1904, there have been admitted to the gynecological department of the hospital 10,961 patients. Of these, 8,590 have undergone some sort of an operation. There have been 4,669 major operations, which term includes all cœliotomies, both abdominal and vaginal, and all operations on the kidney. There have been 31 cases of accidental injury to the ureter, not counting cases in which a portion of the ureter has been intentionally excised, and only one of these occurred in a minor operation, and that was the ligation of the ureter in repairing a vesico-vaginal fistula. Of these 31 cases, 19 have occurred in hysterectomy for carcinoma of the cervix. The relation between this operation and injury to the ureter becomes still more evident when one considers that there have been 19 cases of injury to the ureter in 156 hysterectomies for carcinoma of the cervix and only 11 cases of injury to the ureter in 4,513 other major gynecological operations. These injuries have been of various kinds; as, ligating, clamping, cauterizing, cutting and interferring with the blood supply of the ureter so that necrosis occurred, with a resulting ureterovaginal fistula. Some of these injuries were recognized at the time and repaired, while others were not discovered until afterwards. The cases of accidental ligation and clamping of the ureter have been published.[8]

The compression of the ureters by an extension of the growth and the large number of accidental injuries to the ureter occurring during hysterectomy for cancer, results from the proximity between the cervix of the uterus and the ureters and from the fact also that this relation may be distorted by pathological conditions and by certain steps in gynecological operations.

Anatomical Relation Between the Cervix of the Uterus and the Ureters.

In 1869 Freund and Joseph[9] described the normal relation of the ureters to the various structures in the pelvis and stated that the course of the two ureters is not symmetrical

but that the left ureter is nearer the middle line, and as a rule nearer the uterus and its cervix than the right ureter. They stated that where the ureters cross the common iliac arteries they are 5.7-7 cm. from each other and from there follow the curve of the pelvis, and 2-3 cm. below this point the distance between them increases to 10-13 cm. They now begin to gradually converge, and at the level of the internal uterine os are 9.8 cm. apart, from which point they converge so rapidly that in the course of some 4-4.5 cm. to their orifices into the bladder, the distance between them is diminished to 2.7-3.5 cm. At the level of the external uterine os the distance between the ureters and the cervix is given by them as 2.5-3.3 cm. for the right and 1.5-2.7 cm. for the left ureter. Luschka,[9] in an article on the topography of the ureters in women, states that at the level of the internal uterine of the os the ureters are 2.5 cm. from the cervix, while near the supra-vaginal portion of the cervix they are 8 mm., and at the vaginal vault 6 mm. from the cervix of the uterus. Ten years later Holl [11] reviews the entire subject again and emphasizes that the relation between the cervix and the ureters is asymmetrical and that the distance is usually less on the left side than on the right and also that this relation may be distorted by displacements of the uterus.

During recent years many writings bearing on the topography of the ureters in women have appeared from various sources, and especially instructive are those in which the findings are based from cross sections made of female pelves, thus demonstrating the relation between the ureters and the cervix at the different levels. Such illustrations may be found in Waldeyer's [12] Das Becken and in the Atlas of Tandler and Halban,[13] the latter showing the relation of the female ureters to other pelvic structures, especially in pathological conditions and gynecological operations. Plate No. III of the above-mentioned atlas was made from a cross section of the hardened pelvis of a virgin, seventeen years old, taken at the level of the ureteral orifices in the bladder. In this instance the uterus was in the left side of the pelvis and one finds that at this level the left ureter is but 5 mm., while the right is 2.5 cm. from the cervix. See Fig. II.

Through the kindness of the anatomical department of the Johns Hopkins Medical School, I had the opportunity of studying the anatomical relation between the uterus and the ureters in a multipara with adherent retroposition of the uterus, in the right side of the pelvis. The subject was preserved by injecting formalin through the femoral artery. An attempt was made to inject the arteries with plaster of Paris colored with ultramarine blue. This did not prove to be very satisfactory as the mass became hard before reaching the smaller arteries. The subject was frozen and the pelvis was sawed in serial cross sections. The angle at which these sections were cut is shown in Fig. I by the line b-b which also represents the position of the section from which Fig. IV was drawn and its relation to the horizontal plane of the body represented by the line a-a. In Fig. III, which was drawn from a section cut about 1.5 cm. above the symphysis and 1.5 cm. below the tip of the coccyx, and cutting the head of the femur at a higher point on the left than the right side, the cervix is cut across a little over 1 cm. above the external os. In this drawing the close relation between the uterus and the ureters can be seen, and in this section the right ureter is but 3 mm. distant from the vaginal wall, and its orifice in the bladder is situated directly in front of the mid line of the cervix. See Fig. V. The distance between the vaginal wall and the left ureter is 8 mm. in this section and its orifice is situated lateral to the cervix, as shown in Fig. V. The asymmetrical relations between the cervix and the ureters, caused by the uterus being in the right side of the pelvis, is again brought out in Fig. IV, which is situated a little over 1.5 cm. above the section represented in Fig. III. In this section the right ureter is but 8 mm. from the cervix, as contrasted with a distance of 3.5 cm., i. e., over four times as great, which separates the left ureter from the cervix. From these sections I reconstructed the relation between the ureters, uterus, rectum and sacrum and coccyx. Fig. V is a drawing representing this reconstruction and as shown in this drawing the course of the ureters, as far as the fixed structures of the pelvis are concerned, as the sacrum and mid line, are practically symmetrical, but their relation to such movable structures as the rectum and uterus is dependent on the position of these structures in the pelvis, and in this case the close proximity of the right ureter to the uterus is dependent not on the course of the ureter in the pelvis but is due to the fact that the uterus is the extreme right side of the pelvis, adherent, in retroposition and descensus. From a study of the course of the ureter in cadavers and the above specimen, together with a comparison of the findings in the literature, it becomes evident that the ureters in their course through the pelvis, follow in general the curve of the pelvic walls, and as they approach the bladder they converge so that the distance between them may be but 4-6 cm. at their entrance into the bladder and 1.5-3.5 cm. at the ureteral orifices, the distances varying in individual cases and the degree of distension of the bladder.

The relation between the cervix and the ureters depends upon the size of the cervix, and the position of the uterus in the pelvis, whether in the right or left side, and, moreover, whether in retroposition or in anteposition. In the retroposition of the uterus, the ureters may be situated anterior to the uterus for their entire course, while, as known, in the anteposition of the uterus the course of the ureters is posterior to that organ until they reach the parametrium, when they cross the cervix from behind in order to reach the bladder in front.

The independent relations between the ureters and the uterus under normal conditions again manifests itself in the fact that in such conditions the cervix may be drawn almost down to the vulvar orifice and yet unless the bladder is drawn down with it there is very little displacement of the ureters, as may be shown by catheterizing the ureters and then placing a finger in the vagina, thus feeling the catheterized ureter, and dragging the cervix down with a tenaculum.

All those operating in the pelvis should bear in mind that lateral displacements of the uterus indicate that the ureter is nearer on that side and that this relation may be otherwise distorted by pathological conditions and various steps in operations. It becomes evident that definite rules cannot be laid down, but that the one requisite for an intelligent handling of the subject is the ability to recognize the parts as one comes to them. Nevertheless, there are certain other anatomical features which should be known and always borne in mind in all operations involving the pelvic portions of the ureters. In 1892 Waldeyer[14] showed that there was pictured in Krause's Anatomy longitudinal muscular bundles which extend from the bladder upwards on the ureter, but the cut was not accompanied by any description. See Figs. IX and X. Waldeyer describes them as longitudinal muscular bundles, which are united to each other by connective tissue and separated from the ureter by a space which can be injected. This sheath has a thickness of .5 to .75 mm., and, he says, extends 3.4 cm. up on the ureter. The lumen he considers to be a lymph space.

Disse[15] refers to Waldeyer's sheath and states that these muscular bundles which are greatly hypertrophied, do not arise from the bladder as they appear to do, but from the ureter, and suggests that their hypertrophied condition, as well as the space between them and the ureter, arises from the contractions of the bladder pulling on the outer ureteral coat. See Fig. X.

There are present about the pelvic portion of the ureter possibly two sheaths instead of one, the so-called sheath of Waldeyer which Disse claims arises from a hypertrophy and splitting of the outer ureteral muscular coat, and the second, which apparently encircles the upper portion of the former sheath, blending with it, and extends along the ureter. See Figs. VIII, IX, and X. Further studies may show that this second sheath is but a continuation of the other, but from the few cases I have studied it would seem to be different in origin and while blending with the other, to enclose the upper end of it, as shown in Fig. V. The anatomical relation between the two sheaths needs further investigation. The fibrous sheath apparently arises from the tissues about the pelvic portion of the ureter and is continuous with the subperitoneal tissue surrounding the abdominal portion of the ureter. This sheath, which may be called the pelvic ureteral sheath, is composed of fibrous tissue, with an occasional muscle bundle. Its lumen is for the most part filled with adipose tissue and fine fibrous tissue strands, thus acting as a cushion surrounding the ureter. One finds in the hardened specimens empty spaces which may be lymph spaces or possible artefacts. This sheath is of great importance, for it not only furnishes a channel in which the ureter may slide as it contracts, but is also a protection to the ureter from the invasion of cancerous growths (Figs. XIII, XIV, and XVII) or inflammatory processes and during operations in that portion of the pelvis. Of special interest in connection with this work is the fact that the periureteral arterial plexus, by which the ureter is nourished, lies within this sheath and is thus protected by it. See Fig. VII.

If serial sections of the parametrium are studied one can see how adherent this ureteral sheath may to the other structures in that part of the pelvis, especially the uretero-vaginal and vesico-vaginal plexuses of veins (Fig. XIII), for it is from these structures that it is apparently partially derived. It is evident that the isolation of this sheath in the parametrial portion of the ureter is very difficult on account of its association with the structures above referred to, much more so than in that portion of the ureter above the parametrium, for here it lies just beneath the peritoneum being adherent to it and by freezing the peritoneum the ureter with its sheath may be moved about on the peritoneal flap. Fig. VII.

Relation Between the Ureter and Carcinoma Cervicis Uteri as Shown by a Study of Those Cases in Which the Lower Ends of the Ureters have been Resected.

I have had the opportunity to study the parametrium from six cases in which one or both ureters had been resected.

The ideal way to study such cases would be to block the entire cervix and cut serial sections of the whole block, which aside from technical difficulties would represent in many instances for one case alone the study of 1,000 sections, each one of which would require a cover slip 6-8 cm. by 4-5 cm. to cover. Such an estimate is based on cutting the sections 40 microns thick and studying only the lower 4 cm. of the cervix. If in order to facilitate matters the uterus were split and each parametrium were cut separately, then there would be 2,000 sections instead of 1,000 as in the previous instance. Kundrat in studying 80 cases, or 160 parametria, studied but 21,000 sections. Had he employed the method above referred to it would have been necessary to study 160,000 sections, or nearly 8 times as many as he did. In the first two cases I made a sagittal section of the lower 4 cm. of the cervix and then cut each parametrium in blocks 1 cm. thick. These blocks were embedded in celloidin and each block was cut in series. The sections were stained in hematoxylin and eosin and mounted in water and then examined, and only a few of those which showed interesting points were saved and mounted in balsam.

The disadvantages of this method were that it took too much time, and again, it was inaccurate because it was necessary to trim each block before cutting it, and also the lower millimeter or more of each block was lost. I learned from these two cases, for I cut the sections myself, that it was possible to determine the presence of tissue simulating carcinoma in the parametrium, for as the sections are cut one can easily see such tissue as nerves, ganglia, lymphoid tissue, etc., in the parametrial tissue, for they appear as opaque white tissue having the form of these structures and can be clearly differentiated from the other structures in the parametrium, as adipose, fibrous tissue, and the blood vessels. In the next two cases an attempt was made to be more thorough, so the lower 4 cm. of the entire cervix was embedded

in celloidin and an attempt was made to cut it in series, but here the difficulties of properly embedding such a large piece of tissue presented themselves, and in cutting the tissue phleboliths were encountered in the veins which dulled the knife and made it necessary to dig them out, and before finishing more tissue had been lost than by the previous method.

The following method, which is but a modification of the first one, has proven fairly satisfactory, although it is far from being ideal and can be criticised from the standpoint of exactness and thoroughness. It has been employed in 6 cases, in 2 of which the ureters had been resected and not in the other 4.

The entire specimen, without cutting it open, is hardened in formalin, 4%, for 48 hours, then washed in running water for a few hours, then placed in 80% alcohol. The cervix is amputated above the parametrium and then bisected anteroposteriorly, thus forming two pieces of tissue consisting of one-half of the cervix and the parametrium on that side. An incision about 3 mm. deep is now made in the posterior surface of each half of the cervix, parallel to the edge of bisection, and if on the left half this incision is placed nearer the mid line than on the right; then by comparing the two sides the left can always be distinguished from the right side. The object of this incision is to enable one always to be able to determine the anterior from the posterior border of the section after it is mounted, and also to distinguish the left from the right side should the labels come off. Cross sections 1 cm. apart are now made of each piece of tissue. This gives 4 or 5 blocks 1 cm. thick for each side, or 8 or 10 blocks for each specimen. These blocks are numbered, I, II, III, IV, and V, for each side, depending on the number of blocks beginning from above down. See Fig. VI. The blocks are embedded in celloidin and cut 40 microns thick, each fifth section being saved and placed on a piece of paper which contains the number of the block and the section, as for example, the section from which Fig. VIII was drawn has the number R. III, 6, which means that it is the thirtieth section cut from the third block of the right half of the uterus, counting from above downwards, and so can be located in the drawing of the gross specimen. See Fig. VI. Thus every fifth section cut is saved, and in addition all sections showing any tissue resembling cancer, as nerves, ganglia, lymph nodes, etc., which, as stated, can be seen with the naked eye as the sections are out. On this account I have cut the sections in every instance. These sections are stained in hematoxylin and eosin, mounted, and such as are found to be interesting are saved. The expense of glass to mount them on is quite an item, and I found that old photographic negatives can be bought very cheaply and can be cut into suitable sizes, as, for instance, a 4 x 5 negative cut in two makes two very good slides, on each of which one or sometimes two sections can be mounted, using mica for cover slips.

The lymphatics of the pelvis have been handled as follows: The tissue with the lymph nodes is embedded in celloidin the entire block thus formed is cut; all sections are saved and placed in a bottle; a few sections from the bottle are stained, and if cancer is found the rest are not stained, otherwise, the stains are poured into the bottle and thus the entire contents of the bottle are stained at once, and after being stained they are kept in alcohol and sections are removed from the bottle and mounted in balsam and studied either until cancer is found or until they have all been mounted and studied, thus excluding cancer.

From a study of the parametrium in these few cases alone, much may be learned about the anatomical relation between cancer of the uterus and the ureters. One must consider the following classes of cases:

1. Cases in which the growth is restricted to the cervix and the cervix has not been enlarged by the growth.
2. Cases in which the growth is restricted to the cervix but the cervix has been distended by the growth, thus bringing the cervix nearer the ureters.
3. Cases in which there has been a direct extension of the growth out into the parametrium.
4. Cases in which there has been a metastasis of the growth to the structures of the parametrium, as the lymph nodes, lymph channels, sheaths of the nerves, ganglia, blood vessels, etc.

1. Parametria where the Growth is Restricted to the Cervix and the Cervix has not been Enlarged by the Growth.

In such cases the relation between the cervix and the ureters would be the same as under other conditions where the uterus is not involved by carcinoma. This relation has been previously discussed.

2. Parametria where the Cancer is Restricted to the Cervix, but on Account of its Size has Greatly Enlarged the Cervix.

If one will study cross sections of the pelves of women who have died during the puerperium, a very clear idea may be obtained of the relation between the ureter and the cervix when the latter is enlarged, thus bringing the two structures in closer relationship. This is well shown in the illustration of such cases in Webster's [1] work on female pelvic anatomy. In Fig. VIII and IX the cervix is only slightly enlarged by the carcinoma, but measurements from the sections from which these illustrations were made show that the distance between the cervix and the ureter at these levels is less than 4 mm. and yet the parametrium is not invaded by the growth and the cervix is not greatly enlarged. On the other hand, the specimen from which Fig. XI was made shows a cervix which is enlarged by the growth nearly half again as great as the case from which the other two illustrations were drawn, yet in the section from which the latter drawing was made the distance between the ureter and the cervix is twice as great as in the other two cases, which may be explained because it is from a section higher up in the parametrium than the other two and possibly the ureter was further away from the cervix in this case than in the other. In the upper portion of the

parametrium the ureter is some distance from the cervix, possibly 2 or 3 cm., but draws near the cervix as it approaches the bladder, and in addition one ureter may be much nearer the cervix than the other depending on the position of the uterus in the pelvis. As one would infer, the larger the cervix the nearer the distance between the two, as shown by cross sections of the female pelvis taken during the puerperium, where the cervix is enlarged.

3. Parametria with a Direct Extension of the Cancer out from the Primary Growth.

From a study of the anatomical relations between the cervix and the ureter one must realize that while it would take considerable extension of the growth to reach the ureter in the upper portion of the parametrium, for they may be separated from each other for a distance of 2 to 3 cm., that on the other hand, it requires but a slight amount of parametrial involvement to extend to or beyond the ureters in the lower portion of the parametrium, for this distance may be less than 5 mm., as shown in Figs. V, VIII and IX. The above point is clearly shown in Figs. XIII and XIV, both from the same case. In Fig. XIII, which is from the upper portion of the parametrium, the ureter is over 1 cm. distant from the cervix, which is enlarged by the extensive cancerous process. On the other hand, in Fig. XIV, which represents a section taken from the lower portion of the parametrium, one can see the true nature of the growth, how it is invading the bladder muscle and has extended out to and invaded the pelvic ureteral sheath. Notice how the sheath has become hypertrophied, thus better protecting the ureter, and that it apparently is derived from the pelvic structures and at this point is intimately connected with the utero-vaginal plexus of veins and that it would be very difficult to separate it from the latter. The involvement of the ureteral sheath by carcinoma is more clearly brought out in Fig. XV which is from another case. Here one sees the marked hypertrophy of this sheath and how it protects the ureter and its arterial plexus.

4. Metastases of Carcinoma Cervicis Uteri into the Parametrium.

The relation between cancer and the regional lymphatics is one of the most interesting and important phases in the treatment of cancer of the uterus.

Apparently three types of lymph nodes must be recognized in the parametrium:

A. The large (relatively) lymph nodes sometimes found in the parametrium near the ureter.

B. The minute parametrial lymph nodes.

C. The lymph nodes situated within the lymph channels.

A. The Large Parametrial Lymph Nodes.

Poirier," in his recent work on the lymphatics, discusses the presence of these lymph nodes and states that one may find as an abnormality a fair sized lymph node where the lymphatics coming from the cervix cross the ureter. This undoubtedly is the lymph node which is represented in Fig. XI, as situated posterior and lateral to the right ureter. In this instance it had a diameter of .8 cm. and was recognized at the time of the operation. The entire node was cut into sections and all the sections were examined. There was no evidence of carcinoma found in the node, and its histological structure was similar to that of nodes in other portions of the body. I believe that a similar node is represented in Fig. XVII, which is from another case. Its situation is similar to the above. This latter node was cancerous and had become necrotic and cystic. Its diameter was over 1 cm. in the fresh condition.

Not only should the possibility of the existence of this node be borne in mind, but also its relation to the ureter, for in these two cases it was found posterior and lateral to it and would have been overlooked in a hysterectomy mesial to the ureter.

B. The Minute Parametrial Lymph Nodes.

One may find scattered throughout the entire parametrium minute lymph nodes whose structure apparently differs in no way from that of the larger nodes throughout the body. These nodes are represented in Figs. VIII and X and in neither case were they involved by cancer. The one represented in Fig. VIII was oval in form and had a long diameter of less than 2 mm. I found one of these nodes involved by cancer in two cases where the ureters had not been resected and in one case apparently the situation of the node had been lateral to the ureter. In neither of these two cases did the cancerous process increase the size of the node. I have found the number of these parametrial nodes variable, but never greater than 5 in any one parametrium. Poirier," in referring to the lymphatics in any region, states that according to Stöhr the lymph vessels pass through three distinct glandular stages during their course. First of all, there are the small nodules of interrupted glands, Schaltdrüsen, whose presence is inconstant, and number variable, and which are always unaffected by injections; then, come the regional glands, where the glands are larger and more constant. Finally, there are the intermediary glands. Poirier criticises this classification showing that one cannot always divide these glands into three distinct groups. He states that the knowledge of these relays of glands placed in succession one behind the other in the lymph stream, is interesting from a pathological point of view, for they constitute so many stages at which the spread of infections and cancer is temporarily arrested. I do not know whether these nodes which I have described may be called interrupted nodes or not, but one fact is certain, and that is that they have the histological appearance of the large lymph nodes and cancer may metastasize to them and that without enlarging these nodes so that they may be so small that they cannot be palpated in the parametrium even after the specimen has been removed.

C. Lymph Nodes in the Lymph Channels, or Intravascular Lymph Nodes.

In the parametrium of a case of carcinoma of the cervix

which I [11] reported over a year ago, there were found small lymph nodes varying in size from 1 to 2.5 mm., in diameter. These nodes were apparently situated in the lymph channels, partially filling the lumen like a sponge and were in places attached to the wall of the lymph vessels, and in some instances could be seen forcing their way through the wall of the lymph channels from the outside. There were many of these nodes in the parametrium of this case, eight being present in one section alone. In this section one could follow the course of the lymphatics through the parametrium by means of these nodes of lymphoid tissue. Histologically they resembled somewhat the ordinary lymph nodes except they gave the impression of having been made in a hurry, for in some apparently the germinal centers were absent and in those in which they were present they were poorly defined. About the periphery of these nodes could be seen spaces through which the lymph could pass. Cancer was found in only two of these nodes and the presence of the growth did not apparently increase the size of the node. All the other nodees were free from cancr. Fig. XVI represents a section in which there are 4 of these nodes in the parametrium, and the one which is posterior and lateral to the double ureter contains cancer. The distance between the double ureter and the cervix in this section is over 1 cm. I have found these nodes in other cases. One can imagine many things in regard to their function, as, that they are newly formed and act as a means of protection to the individual from the extension of the growth. It is of interest to know whether they can give rise not only to the other minute typical lymph nodes found in the parametrium, but also to the larger lymph nodes. Kundrat speaks of them as intravascular lymph nodes. He divides them into two classes, first, those which project into the lumen of the vessel, being attached to it by a pedicle; secondly, those which apparently have invaded the wall of the lymph channel, a portion of the lymphoid tissue being within the lumen and a portion outside. He thinks that possibly the latter group is a forerunner of the first. The schematic representation of these lymph nodes is well shown by Kundrat. Perhaps these nodes are the interrupting nodes previously referred to in this article which are not affected by injections. The subject with its bearing on the lymphatics throughout the entire body, needs further investigation.

D. The Metastasis May Occur in the Lymph Channels, etc.

It is quite remarkable how rarely one finds metastasis in the lymph channels. In Fig. XV there is present carcinoma apparently in a lymph space just outside of the cervix. This may be a metastasis but is more likely to be a direct extension of the growth. Unfortunately some of the sections in the series were lost at this point and I was unable to determine whether it was a metastasis or had arisen from a direct extension of the growth. In the few cases in which I had studied the parametrium, only 10 in number, the spreading of the growth from the cervix has been either by direct extension or by metastases to the lymph nodes of the parametrium or pelvis, and in only one instance have I seen what was apparently a metastasis in the lymph channel and have never seen metastases in the nerve sheaths or in the ganglia, as represented by Kundrat and as has been described by other writers.

How the Relation Between Carcinoma Cervicis Uteri and the Ureters Influences the more Radical Operation.

The high percentage of recurrences shows that hysterectomy alone cures cancer of the cervix in only a small portion of the cases. This is explained by a study of the parametrium in the operable cases, in which Kundrat has shown that there has been an extension of the growth into that tissue in over 50 per cent of the cases. A study of the anatomical relations between the ureter and the cervix shows that the distance between the ureter and the cervix becomes less as one approaches the bladder and that the lower portion of the ureter may lie within 5 mm. of the cervix, and may unfortunately pass through the tissue first invaded by the cancer. See Figs. VIII, IX, XIII, and XIV. It takes but a very little invasion of this tissue for the growth to reach or extend beyond the ureter. See Figs. XIII and XIV.

Clinical observations confirm the close relation between cancer of the cervix and the ureters, as renal insufficiency may result from a compression of the ureters in the extension of the growth, and the fact that injury to the ureters occurs so frequently in operations for cancer of the cervix.

The result of the above is that the operation which would give the highest percentage of cures is one in which the entire parametrium is removed, including the lower 3 cm. of the ureters, and the renal ends of the ureters are implanted into the bladder. The criticism against this procedure is the danger of ascending renal infection and the liability of ureteral stricture, because the ureter is implanted under tension. I have studied the etiological factors in the causation of ascending renal infection and these results have been published." In this article the importance of lowered renal resistence was emphasized and that probably a stricture of the ureter was the most frequent cause of such lowered local resistence. The frequency of cystitis following this operation was also referred to and attention called to the fact that probably the cystitis could be controlled and the danger of ascending renal infection obviated by making a vesico-vaginal fistula at the close of the operation. The tension of the implantation could in a great measure be relieved by bringing down the peritoneal flap on which the ureter lies with its sheath, see Fig. VII, and after implanting the ureter into the bladder the sheath with the peritoneum may be sutured to the bladder, which may be freed if necessary in order to lessen the tension. By this procedure the tension of the implantation is not only relieved but the ureteral sheath is preserved, thus protecting the ureter and its arterial plexus and furnishing a channel in which the ureter may contract.

The dissecting free of the ureters from the parametrium is attended with danger of ureteral necrosis and ureteral

stricture. I [20] have studied the efficiency of the blood supply of the ureter and showed that, based on anatomical, experimental, and clinical studies, the maintenance of the periureteral arterial plexus is necessary for the prevention of ureteral necrosis. The ureter is nourished by a periureteral arterial plexus which, if intact, can probably be maintained by any one ureteral artery. When the ureter is dissected free in these more radical operations, the ureteral arteries supplying the lower portion of the plexus are destroyed, which means that this portion of the ureter must be nourished by the blood coming through the plexus from above. If the ureter is handled roughly there is the danger of injuring this plexus so that necrosis will occur. In addition when the ureter is dissected free from its sheath, as it is in these operations, it becomes imbedded in scar tissue, its function is interfered with, and there is the danger of ureteral stricture and ascending renal infection, for of two patients dying of ascending renal infection the ureters were resected in one and not in the other.

Whichever course is followed in these operations, as the result of anatomical studies, confirmed by animal experimentation and clinical experience, *the periureteral arterial plexus and also the ureteral sheath should be preserved.*

The hysterectomy mesial to the ureters preserves the ureteral sheath and thus the ureter with its periureteral arterial plexus, but does not remove the tissue about and lateral to the ureter which unfortunately must be involved in many instances, for the lower ends of the ureters lie frequently within 5 mm. of the cervix in the region first invaded by the carcinoma and so it would take but a very slight involvement of this tissue by metastasis or direct extension of the growth to reach or extend beyond the ureter, VIII, IX, XIII, and XIV, and again, one is not able clinically to diagnose the presence of cancer in the parametrium, see Fig. XVI.

Description of Operation, Based on Anatomical and Pathological Studies and Clinical Experience.

1. Building up of the patient before the operation, rest in bed, and treatment of anæmia if present are very essential. I do not see that there is anything to be gained by the preliminary curettage of the growth, except in occasional cases when it is necessary to do it in order to control the bleeding, or there is present a very foul mass. The danger of infection during the operation is minimized by the use of the Wertheim clamps in the operation. A thorough cleaning out of the intestines before the operation is very important.

2. The preliminary catheterization of the ureters certainly aids during the operation and can usually be done with the patient in the Sims posture [21] before taking the anesthetic.

3. After the patient is anesthetized the passing of a rectal tube will frequently relieve any distention of the large intestines, if gas is present, for one wishes as much room as possible during the operation.

4. The preliminary vaginal sutures previously described [1] need not be placed all the way around the vagina, but 2 or 3 on each side will occlude the main vaginal veins which help form the utero-vaginal plexus situated lateral to the ureters, see Figs. II, III, IV, XIII, and XIV. These sutures of catgut are passed with a large needle, include large masses of tissue, and should be placed about 3 cm. below the growth. These sutures are of a greater service when the ureters are dissected free than when they are resected, as in the former procedure the ureter with its sheath must be freed and the latter is partly formed by this plexus, see Fig. XIII, the main trunks of which are supplied by veins included in the preliminary sutures.

6. The patient is now placed in the high Trendelenberg position and an incision is made from the umbilicus to the symphysis down to the peritoneum, but not through it. The peritoneum is now pushed back from the anterior abdominal wall and a transverse incision is made through it just above the bladder. This gives rise to a peritoneal apron, which, after pushing back the intestines, is sutured to the posterior pelvic wall with catgut, thus shutting off the general peritoneal from the pelvic cavity and keeping the intestines from the field of operation, and doing away with bolsters and gauze pads in the general peritoneal cavity. This exposure which was first described by Poten,[22] is all that could be desired, especially if a self-retaining retractor is used and the sides of the abdominal incision are protected with gauze. It seems to me that the incisions proposed by Amann [23] and Machenrodt [24] (which I [2] referred to over a year ago) where the recti are cut, are unnecessary. I have used the Poten incision in 8 of 11 of these more radical operations and think it is much to be preferred to the older methods of packing back the intestines with gauze. It protects the abdominal cavity better and also possibly diminishes the shock of the operation, although I have seen patients at the close of an operation where this was used apparently as much shocked as in other cases where it has not been used. This peritoneal flap is released at the close of the operation and the incision in the peritoneum is closed transversely.

7. After obtaining a satisfactory exposure the high Trendelenberg position may be lowered if so desired. The ovary on the left side is now grasped by a pair of forceps and pulled outwards and towards the symphysis, thus making taut the ovarian vessels and the peritoneum covering the iliac vessels. The peritoneum is split below and parallel to the ovarian vessels as high up as the iliac vessels. The ureter will lie on the lower peritoneal flap and be out of harm's way. The ovarian vessels and the round ligament are now cut. Beginning at the origin of the internal iliac artery, dissect downwards, removing the fat and lymphatic structures, including lymph nodes from along the iliac vessels, thus exposing the pelvic vessels and removing the tissue en mass. By using a blunt dissector and always dissecting down along the vessels, hemorrhage may be avoided. The uterine artery is exposed and ligated at its origin. I do not think that there is any operative advantage to be gained in ligating either the internal iliac artery or its anterior branch over the ligation of the uterine artery alone, and there is this disadvantage that the nutrition of the pelvis is interfered with, thus predisposing

it to infection and possibly necrosis. The other side is treated in a similar manner. If difficulty is experienced in locating the uterine artery, first find the obliterated hypogastric and follow that back, taking care not to injure its superior vesical branch, and this will lead one to the uterine vessel.

8. The tissue on either side is dissected from the sides of the pelvis, thus freeing the uterus and bladder with all the tissue from pelvic wall to pelvic wall, including the lower portion of the ureters, in one mass.

9. Both uretero-sacral ligaments are now ligated and cut, taking care not to injure the ureters at this point. This allows the uterus to be lifted further out of the pelvis.

10. The uterus is pulled upwards towards the umbilicus and the bladder is dissected free from the cervix down to the entrance of the ureters into that organ.

11. The treatment of the ureters should demand one's attention next. There is now situated in the pelvis a mass of tissue consisting of the uterus and all the tissue from pelvic wall to pelvic wall, through which the ureters pass. This tissue is held in the pelvis by the vagina; the ureters, which pass through it; the vesico-vaginal and utero-vaginal plexuses of veins; by the tissue uniting the vagina to the rectum posteriorly; and by similar tissue extending from the lower portion of the parametrium to the bottom of the pelvis. Whatever is done, the periureteral arterial plexus must be guarded, otherwise, there is liability of ureteral necrosis, and also if possible the ureteral sheath should be preserved, as it protects the ureter and its blood vessels, as has been explained.

a. If one decides to resect the ureters, they are cut off just within the parametrium and also at their entrance into the bladder.

b. If one decides to save them they must be dissected out from this tissue, taking care to preserve not only the periureteral arterial plexus, but also the ureteral sheath. This latter will be found to be very difficult on account of the intimate association between this sheath and the structures (see Figs. XIII, XIV, XVI, and XVII) which one wishes to remove; on the other hand, it is quite a simple matter to split the sheath open and shell the ureter out. This latter procedure is attended with danger of injuring the periureteral arterial plexus, and so possibly causing ureteral necrosis, and in addition the ureter will be deprived of its sheath and be embedded in scar tissue.

After disposing of the ureter a sponge on the end of a sponge-stick may be pushed into the vagina and by palpation one can tell how far down to dissect the vagina free. Instead of the sponge I have found very serviceable, the end of a spool which has been covered with gauze and grasped by a heavy pair of Jacob's forceps. The rim of the spool can be palpated more rapidly than the gauze sponge. The separation of the rectum from the vagina must be done with care, and also the freeing of the parametrium from the bottom of the pelvis.

12. After dissecting the vagina free down to the preliminary catgut sutures or to a point determined by palpating the spool in the vagina, the vagina is wiped dry and clamped with two right-angle clamps (Wertheim) and burned across between the two clamps with a pacquelin cautery.

13. Uretero-vesical implantation. The ureter on the lower peritoneal flap should be drawn down to the bladder. Introduce a long pair of forceps into the bladder through the urethra and push out the bladder wall in a portion of the bladder as low as possible and reaching the ureter with as little tension on the ureter as possible. An incision may be made on these forceps and a small piece cut out of the bladder wall, leaving a hole the size of the ureter; or an x incision may be made into the bladder and the 2 flaps cut out, thus leaving an opening into the bladder the size of the ureter. The end of the ureter is now slit for a distance of 3 to 5 mm. and one of the lips thus formed is grasped by the forceps and the ureter is drawn into the bladder and held there while the bladder wall is sutured to the ureter with sutures of fine silk, these sutures piercing only the bladder and ureteral muscular coats and not the mucosa. If possible have the ureter pass through the bladder wall in an oblique direction, which may sometimes be done by lengthening the incision or opening in the bladder and suturing the ureter to the sides of this opening. Care should be taken that the ureter will not be kinked when the ureter and bladder are in the position they will assume at the close of the operation, and that the ureter is not compressed by the sutures, causing a stricture. The portion of the ureter which enters the bladder is free from its sheath. The sheath and peritoneal flap are now sutured to the bladder wall. If possible fix the site of the implantation by suturing the bladder at this place to the side of the pelvis. By bringing the ureter down on the peritoneal flap and suturing the sheath and the peritoneum to the bladder, the ureter is provided with a sheath, and the sheath and the peritoneum should relieve to a great extent the tension of the implantation. In addition, the bladder may be dissected free in order to help relieve the tension of the implantation. I have made eleven uretero-vesical implantations in women and twenty-five in dogs, and have tried the method previously reported by me [2] and also the Budinger [3]-Witzel [4] implantation, but think that while both the latter have their advantages the one described above will be the most successful in the greatest number of cases. On account of the great liability to cystitis in these cases, the formation of a vesico-vaginal fistula at the close of the operation, or within the first week after the operation, is a most suggestive procedure, in order to control the bladder infection and thus minimize the danger of ascending renal infection.

14. All raw areas are covered with peritoneum and two small drains are placed in each side of the pelvis and out through the vagina.

I have done eleven of these more radical operations, resecting one or both ureters in three cases. Three cases have died, one on the fifth day from intestinal obstruction, and two from ascending renal infection, one dying on the ninth day and the other upon the seventeenth. In the two cases dying from renal infection the ureters were resected in one and not in the other. Ureteral necrosis occurred in one of the cases in

which the ureters had been dissected free. As yet I have not intentionally made a vesico-vaginal fistula in any case, but in eleven cases in which I have studied the bladder after the operation by taking cultures and making cystoscopic examinations, cystitis was present in 8, while in 3 cases where it was apparently absent an accidental vesico-vaginal fistula was present.

Conclusions.

I. The relation between carcinoma cervicis uteri and the ureters manifests itself clinically:

First, in renal insufficiency resulting from a compression of the ureters by the growth.

Secondly, in the frequency of accidental injury to the ureters occurring during operation for the removal of the growth, there having been in this hospital 19 cases of accidental injury to the ureter in 156 hysterectomies for carcinoma of the cervix as compared with only 11 similar injuries in 4513 other major gynecological operations.

II. A study of the anatomical relations between the ureters and the other pelvic strictures shows:

a. The ureters follow the curve of the pelvic walls and the ureteral orifices are 1.5 to 3.5 cm. apart, the distance varying in individual cases and in the condition of the bladder whether distended or contracted.

b. Under normal condition, the relation between the cervix and the ureters depends upon the position of the uterus whether in the left or right side of the pelvis and also upon the size of the cervix. At the entrance of the ureters into the parametrium, they are at a distance equal to the inside transverse diameter of the pelvis apart at that level and so may be some distance from the cervix, even as great as 3-3.5 cm. On the other hand near the bladder the distance between them is much less, and this distance on one side may be less than 5 mm., in the left and right displacements of the uterus. Unfortunately the lower portion of the parametrium is apt to be the part first invaded by a direct extension of the growth.

c. In retroposition of the uterus, the entire pelvic course of the ureters may be situated anterior to the uterus. This relation may also be greatly distorted by other pathological conditions and by steps in gynecological operations.

III. The pelvic portion of the ureter lies in a sheath which protects the ureter and its periureteral arterial plexus and furnishes a channel in which the ureter may slide as it contracts. This sheath is composed of fibrous tissue, in places reinforced by small muscle bundles, and is apparently derived from the tissue through which or along which the ureter passes and on this account it is very intimately connected with the structures found in the parametrium and its separation from the parametrium is difficult. The lower portion of the ureter is reinforced by muscular bundles also giving rise to a sheath, which Disse claims originates from the ureter and not from the bladder as they apparently do. The fibrous sheath referred to above, while fusing with the muscular sheath, encircles the upper end of it and apparently is a separate and distinct sheath. The anatomical relation between these sheaths needs further study. Recognition of the ureteral sheath is important in all operations involving the lower portion of the ureter, but especially so in the more radical operations for carcinoma cervicis uteri, for in the extension of the growth this sheath becomes involved and hypertrophied, thus protecting the ureter and later as the growth extends compressing it and causing renal insufficiency.

IV. Pathologically, the close relation between carcinoma cervicis uteri and the ureters shows itself:

1. In the distension of the cervix by the growth, thus diminishing the distance between the ureters and the cervix.

2. In the direct extension of the growth from the cervix into the parametrium. As the distance between the ureter and the cervix may be less than 5 mm. in the lower portion of the parametrium, which, unfortunately, is the part of the parametrium first involved by a direct extension of the growth, it takes but very little involvement of the parametrium to reach or extend beyond the ureters.

3. In the metastases to the parametrium, which may occur:

a. In the large parametrial lymph node, occasionally found at the place where the uterine artery crosses the ureter. See Figs. XI and XVII.

b. In the small parametrial lymph nodes scattered throughout the parametrium. Such nodes are represented in Figs. VIII and X (but were not involved in these sections). I have seen them involved in others cases.

c. In the intravascular lymph nodes which protrude into the lymph channels like sponges and may be present in large numbers in these cases. See Fig. XVI.

d. In the other structures of the parametrium as sheaths of nerves, ganglia, lymph spaces, blood vessels, etc.

V. From a study of the parametrium in these cases it becomes evident that the ureter passes through tissue which should be removed in every instance of cancer of the cervix, for it is impossible to diagnose clinically a cancerous parametrium, and there is no relation between the size of a primary growth and the parametrial involvement, for the parametrium may be involved in a small growth and free in a large one.

VI. Two ways of removing all the parametrial tissue present themselves:

1. The dissecting free of the ureters and after drawing them to one side, the removal of all the tissue from pelvic wall to pelvic wall.

2. Removing all the tissue from pelvic wall to pelvic wall, including the lower portion of the ureters, and implanting the renal ends of the ureters into the bladder.

VII. Based on anatomical studies, animal experimentation and clinical experience, two anatomical structures should be preserved; namely, the blood supply of the ureter and the ureteral sheath.

VIII. When one ligates the internal iliac or its anterior branch, the ureteral arteries completing the lower end of the periureteral arterial plexus are cut off and the lower ends of the ureters must be nourished by blood from the upper ureteral arteries, which are able to do this if the periureteral

arterial plexus is intact. If in addition the ureter is dissected free from the ureteral sheath, which is quite easy to accomplish, as all one has to do is to split it open and shell out the ureter, there is danger of injuring the periureteral plexus and liability for ureteral necrosis. In addition, the ureter now lies as a loose cord in the pelvis, its sheath has been destroyed and it becomes embedded in scar tissue with the chance of interference with its function through the ureteral strictures arising from its being embedded in this tissue, hence predisposing the kidney to ascending renal infection. On the other hand, the dissecting free of the ureter with the sheath intact is very difficult, because the sheath arises from the pelvic structures and, in addition, in such cases as are represented in Figs. XIII and XIV, would certainly leave cancer in the pelvis. I am unable to see any operative advantages to be gained in the ligation of the internal iliac artery or its anterior branch over the ligation of the uterine artery alone, and it increases the liability of ureteral necrosis and predisposes these parts to infection.

IX. Removing all the tissue from pelvic wall to pelvic wall with the lower ends of the ureters offers the greatest chance for a cure and at the same time the ureteral sheath and periureteral arterial plexus may be preserved, for the portion of the ureter which is above the parametrium lies on the peritoneum, and this peritoneal flap may be brought down, and with the ureteral sheath sutured to the bladder. The suturing of the sheath and the peritoneum to the bladder relieves in a measure the tension of the implantation and the periureteral arterial plexus is preserved and also the ureteral sheath. Against this procedure are the uncertainties of the uretero-vesical implantation and the danger of ascending renal infection. Careful work should minimize the chance of failure in the uretero-vesical implantation, and possibly the formation of a vesico-vaginal fistula at the close of the operation may lessen the danger of the ascending renal infection. It can be seen that the operation which clinical experience and the study of the parametrium demands as the one which will give the greatest percentage of cures, is a very serious one and attended with uncertainties. Whether this operation ever will be justifiable in all cases, experience alone can decide. In those cases in which the ureteral sheath is involved by the growth it should be the operation of choice; on the other hand, when the ureteral sheath is not involved, it may be possible to dissect the ureters free with their sheath and thus preserve the lower ends of the ureters. The greatest difficulty comes in making a diagnosis, *for only by the use of the microscope can it be definitely decided whether or not cancer is present in the parametrium.*

REFERENCES.

1. Olshausen: Zum Vergleich der vaginalen und abdominalen Operationsmethode bei Carcinoma uteri. Zeitschrift f. Geburt. und Gyn. 1903, L, H. 1, 1-6.

2. Sampson: The Importance of a More Radical Operation in Carcinoma Cervicis Uteri, as Suggested by Pathological Findings in the Parametrium. Johns Hopkins Hospital Bulletin, 1902, XIII, 299-307.

3. Kundrat: Ueber die Ausbreitung des Carcinoms in parametranen Gewebe bei Krebs des Collum uteri. Archiv für Gynækologie, 1903, LXIX, 355-409.

4. Wertheim: Zur Frage der Radical-operation beim Uteruskrebs. Archiv für Gynækologie, 1900, LXI, H. 3, S. 662.

5. Wertheim: Ein neuer Beitrag zur Frage der Radikaloperation beim Uteruskrebs. Archiv für Gynækologie, 1902, LXV, 1-39.

6. Wertheim: Kurzer Bericht über eine 3 Serie von 30 Uteruskrebs-operationem. Cent. f. Gyn., 1902, XXVI, 250-251.

7. Feitel: Zur arteriellen Gefäss-Versorgung des Ureters, insbesondere der Pars pelvina. Zeitschrift zur Geb. und Gyn., 1901, XLVI, 269-281.

8. Sampson: Ligation and Clamping the Ureter as Complications of Surgical Operations. American Medicine, 1902, 1902, IV, 693-700.

9. Freund and Joseph: Ueber die Harnleiter-Gebärmutter-fistel nebst neuen Untersuchungen über das normale Verhalten der Harnleiter im weiblichen Becken. Berlin Klin. Wochenschrift, 1869, VI, 508.

10. Luschka: Topographie der Harnleiter des Weibes. Archiv für Gyna., 1872, III, 378.

11. Holl: Zur Topographie des weiblichen Harnleiters. Wiener med. Wochenschrift, 1882, XXXIII, 1326, 1327, 1458, 1459.

12. Waldeyer: Das Becken. Cohen, Bonn, 1899, S. 420.

13. Tandler and Halban: Topographie des Weiblichen Ureters, etc. W. Braumüller, Wien und Leipzig, 1901.

14. Waldeyer: Ureterscheide, Verhandlungen der Anatomischen Gesellschaft, 1892, 259-260.

15. Disse: Von Bardeleben, Handbuch der Anatomie. Gustav Fischer, Jena, 1902, Band VII, Theil I, S. 107-109.

16. Webster: Researches in Female Pelvic Anatomy. Pentland, Edinburgh, and London, 1892.

17. Poirier, Cuneo and Delamere: The Lymphatics. Keener and Co., Chicago, 1904, 165.

18. Poirier: L. C., p. 86.

19. Sampson: Ascending Renal Infection; with Special Reference to the Reflux of Urine from the Bladder into the Ureters as an Etiological Factor in its Causation and Maintenance. Johns Hopkins Hospital Bulletin, 1893, XIV, 334-352.

20. Sampson: The Efficiency of the Periureteral Arterial Plexus and the Importance of its Preservation in the More Radical Operations for Carcinoma Cervicis Uteri. Johns Hopkins Hospital Bulletin, 1904, XV, 39-46.

21. Sampson: The Advantages of the Sims Posture in Cystoscopic Examinations. Johns Hopkins Hospital Bulletin, 1903, XIV, 194-196.

22. Poten: Die quere Eröfferung des Bauchfells besonders bei der abdominellen Entfernung des Uteruskrebs. Cent. für Gyn., 1902, XXVI, 750-753.

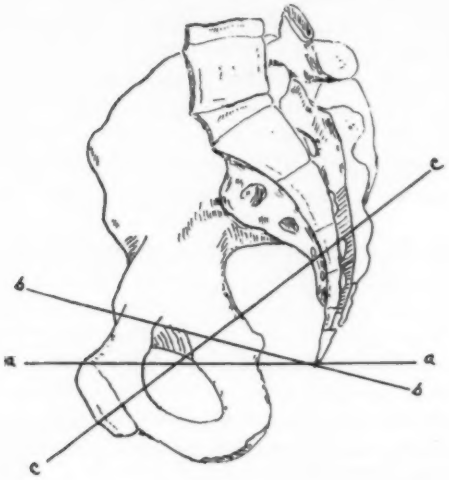


FIG. I.—VIEW OF THE INSIDE OF THE RIGHT HALF OF THE PELVIS OF A WOMAN STANDING, × 3/10 (SPALTEHOLZ).

a-a represents a horizontal plane passed through the body from the top of the symphysis.

b-b represents the general inclination at which the pelvis was cut, in the two sections represented in Figs. III and IV.

c-c represents the probable plane at which the section shown in Fig. II was cut.

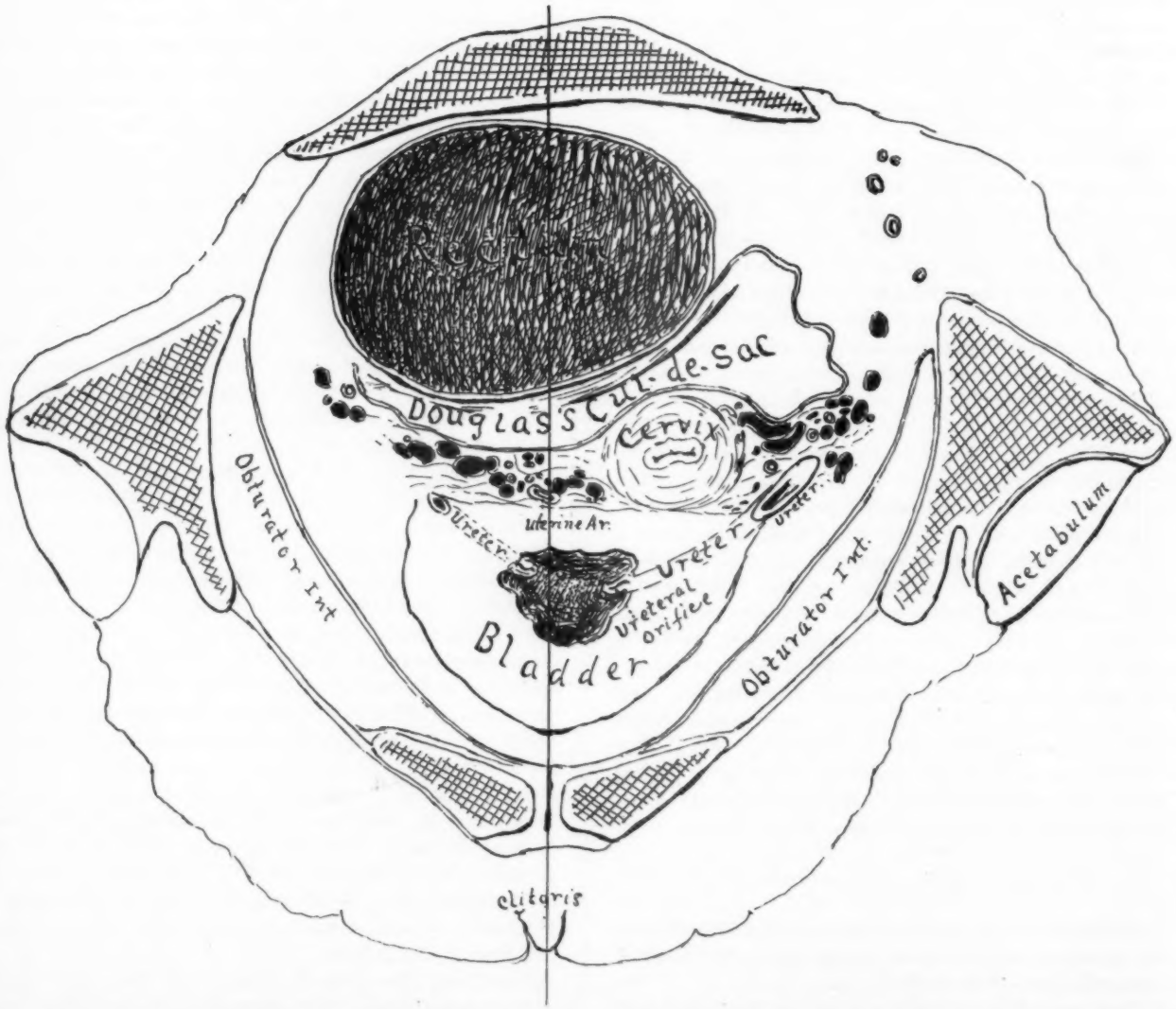


FIG. II.—CROSS SECTION OF THE PELVIS OF A VIRGIN 17 YEARS OLD, × 1 (TANDLER AND HALBAN).

Section taken at the level of the ureteral orifices in the bladder (c-c, Fig. I).

The uterus is in the left side of the pelvis and as a result the left ureter is .5 cm. from the cervix, while the right is 2.5 cm., or 5 times the distance.

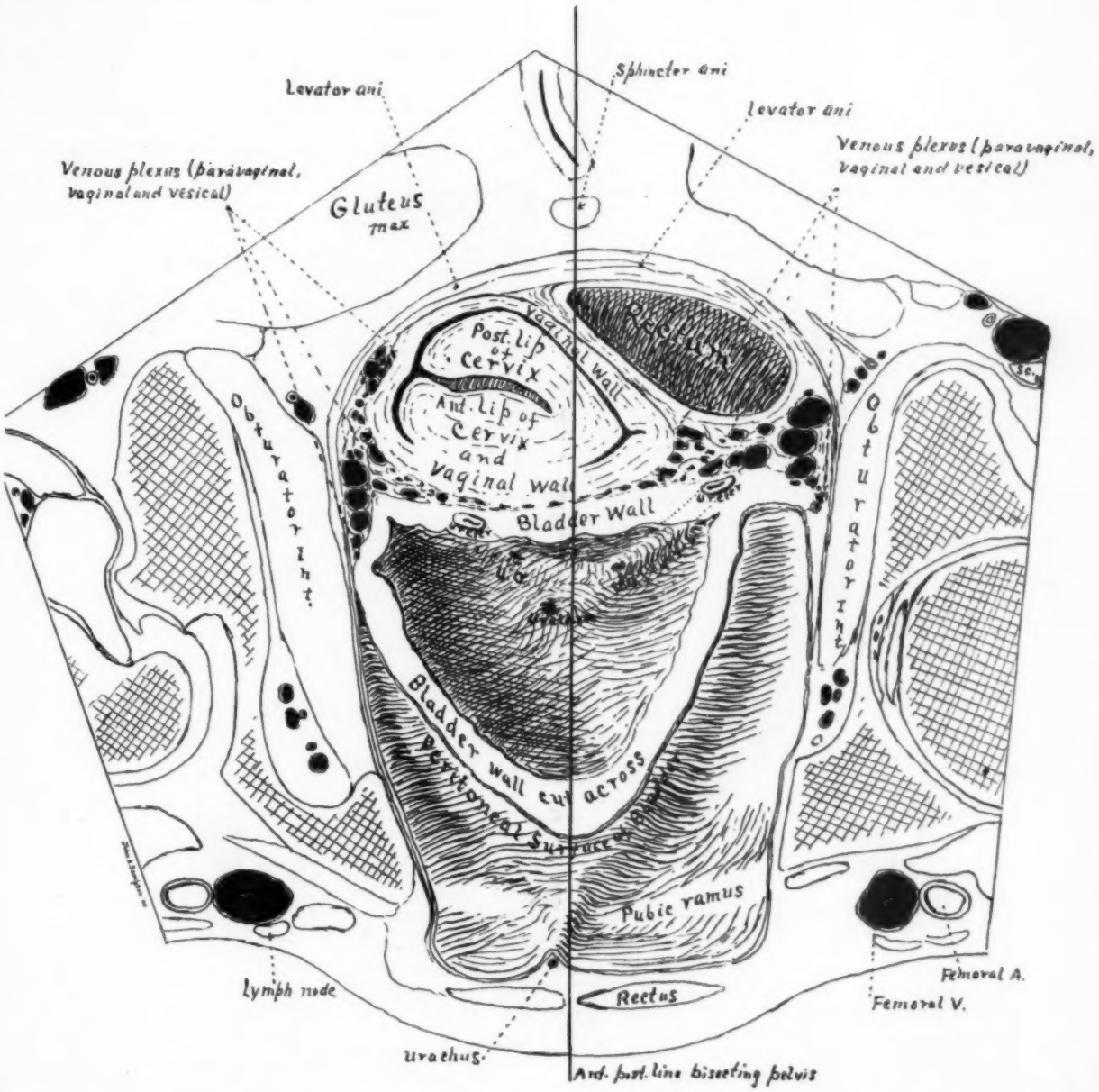


FIG. III.—CROSS SECTION OF THE PELVIS OF A MULTIPARA 30 (?) YEARS OLD, × 1. (FROM A SPECIMEN IN ANATOMICAL LABORATORY, JOHNS HOPKINS MEDICAL SCHOOL.)

Section taken above ureteral orifices in the bladder and represented by line VI in Fig. V.

The uterus is in retroposition adherent, and in the right side of the pelvis. The right ureter is but 3 mm. from the vagina, while the left is 8 mm. distant in this section. Notice the venous plexuses which give rise to the bleeding so troublesome in these operations. Compare with Fig. II and note that the relation of the uterus to the ureters is dependent on the position of the uterus in the pelvis. The section was not cut horizontal, being higher in the left than the right side (see line VI in Fig. V).

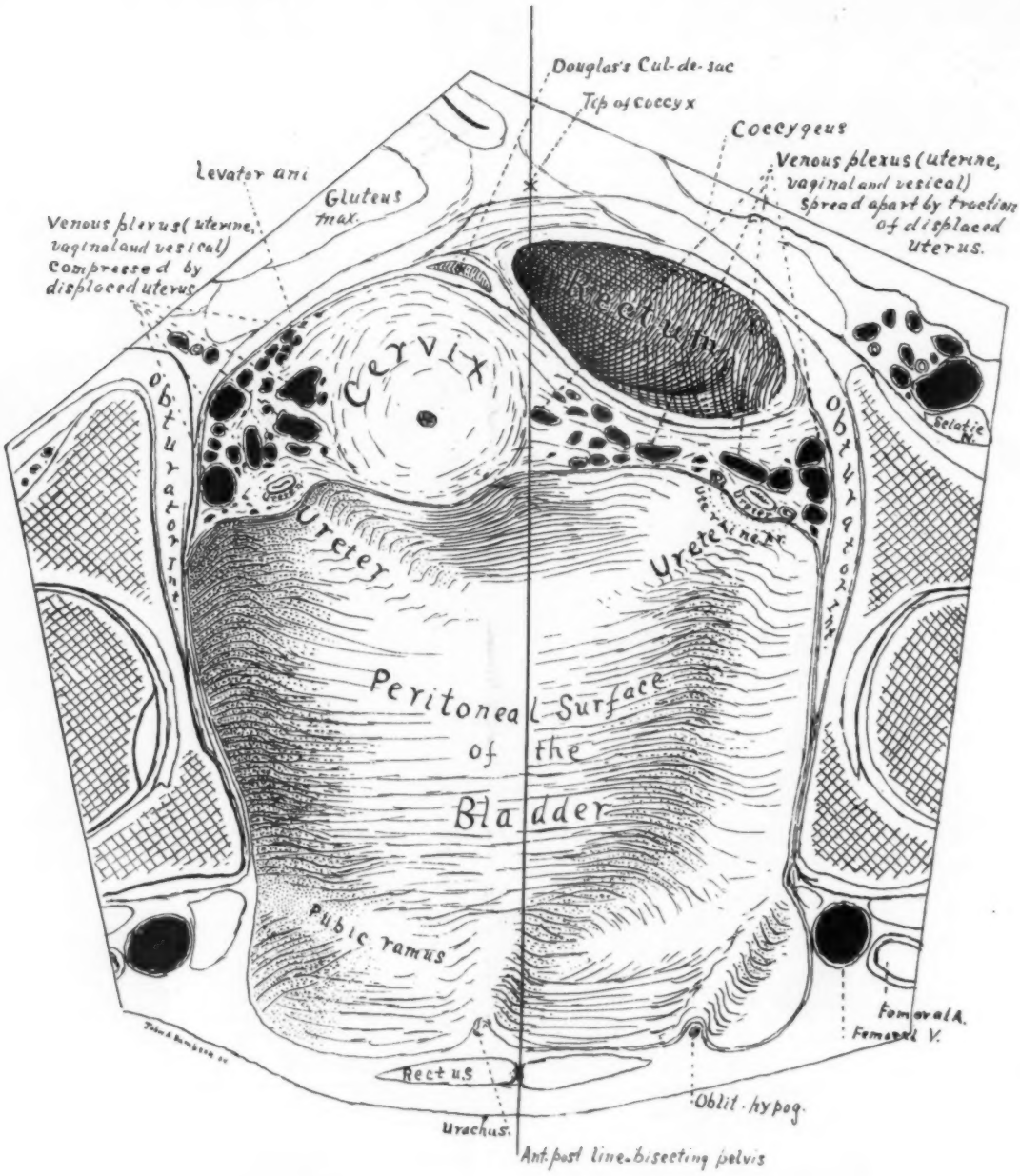


FIG. IV.—CROSS SECTION OF THE PELVIS OF A MULTIPARA 30 (?) YEARS OLD, × 1. (SECTION TAKEN 1.8 CM. ABOVE THE ONE REPRESENTED IN FIG. III.)

Section represented by the line b-b, Fig. I, and V, Fig. V.

Uterus is in retroposition, adherent, and in the right side of the pelvis. The right ureter is but 8 mm. from the cervix, while the left is 3.5 cm. or over 4 times this distance. The relation of the two ureters to the fixed structures of the pelvis, as the pelvic walls, is the same for both ureters, while their relation to the uterus is dependent on the position of the uterus in the pelvis.

Notice the venous plexuses which give rise to the bleeding so troublesome in these operations and to a great part controlled by the preliminary vaginal sutures described in this article. The uterus was in retroposition and posterior to the ureters for their entire pelvic course, so that the cervix was not crossed by the ureters as it is when the uterus is in the anteposition; thus accounting for the situation of the ureters anterior and not lateral to the cervix.

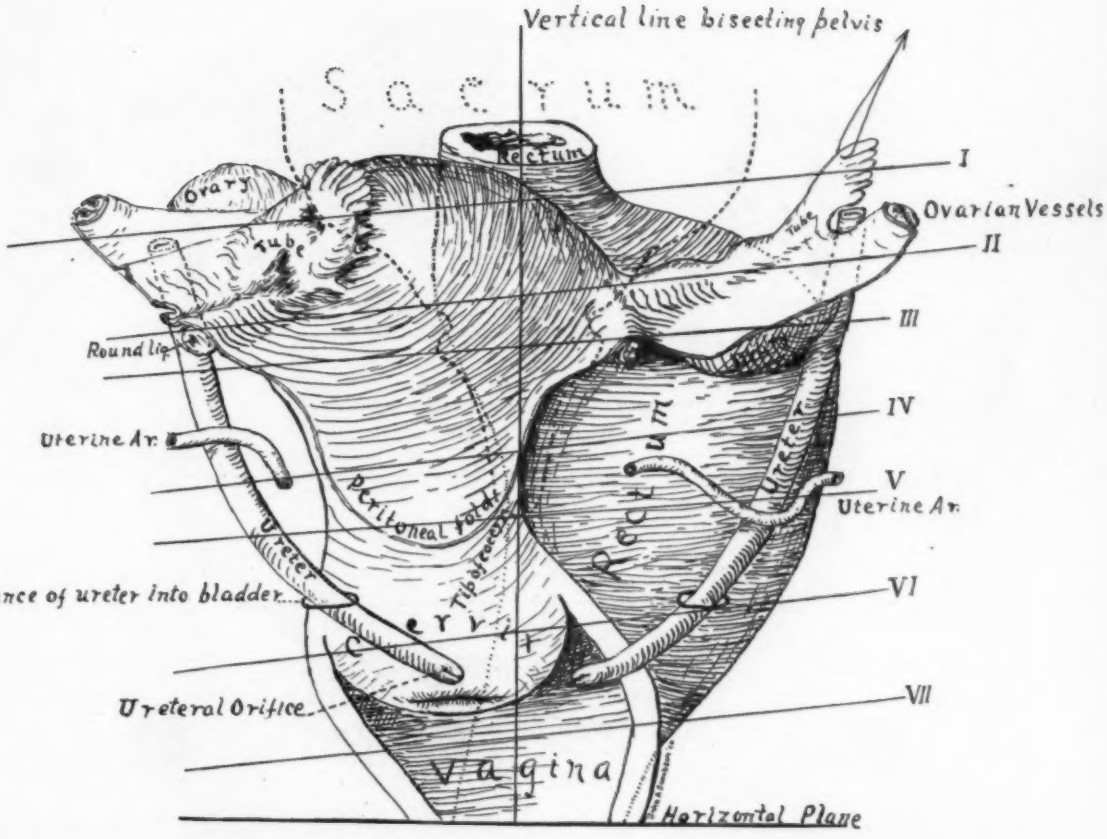


FIG. V.—RECONSTRUCTION OF THE RELATION BETWEEN THE URETERS AND OTHER PELVIC STRUCTURES, FROM CROSS SECTIONS OF THE PELVIS OF A MULTIPARA 30 (?) YEARS OLD, × 1 (SAME CASE FROM WHICH FIGS. III AND IV WERE DRAWN).

The lines I to VII represent the sections from which the reconstruction was made.

The rectum is in the left side of the pelvis and the uterus in adherent retroposition in the right side. The course of the ureters is the same on the two sides, but on account of the displacement of the uterus, the right ureteral orifice is situated directly in front of the middle of the cervix, while the left is situated lateral to the cervix. The relation between the ureters and the uterus is shown and one can see that it is dependent on the position of tne uterus in the pelvis.

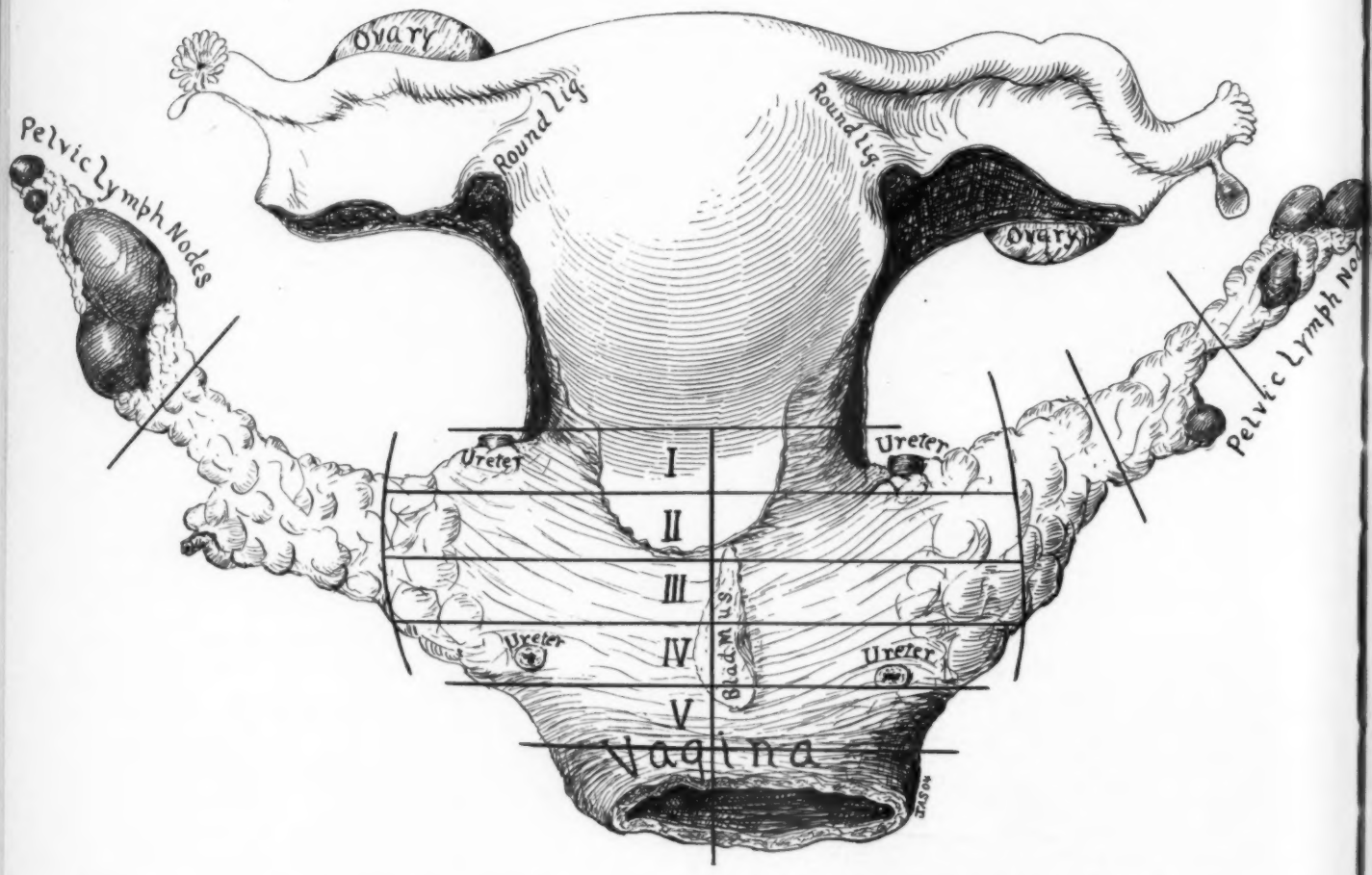


FIG. VI.—REPRESENTS WHAT MAY BE GAINED BY DISSECTING THE LYMPHATICS FROM THE SIDES OF THE PELVIS AND REMOVING WITH THEM ALL THE TISSUE FROM PELVIC WALL TO PELVIC WALL, INCLUDING THE LOWER 4 CM. OF THE URETER, × 1. GYN. No. 10,505. GYN. PATH. No. 6747.

By this method there is an excision of the entire parametrium which is so frequently involved in cancer of the cervix (see Figs. XIII, XIV, XV, XVI and XVII).

In studying the specimen histologically the cervix is bisected and each half with its parametrium is divided into blocks 1 cm. thick, and each block is cut in sections 40 microns thick and every fifth section is stained and studied, as for example, the section from which Fig. VIII was made is labelled III, R. 6, which means that it is the sixth section saved, or the 30 sections cut in the block III on the right side. Only such sections are saved as have interesting features.

The lymph nodes are studied as described and the tissue between them and the primary growth is studied in the same manner as the parametrium.

Figs. VIII, IX, X and XV were drawn from sections made from this specimen.

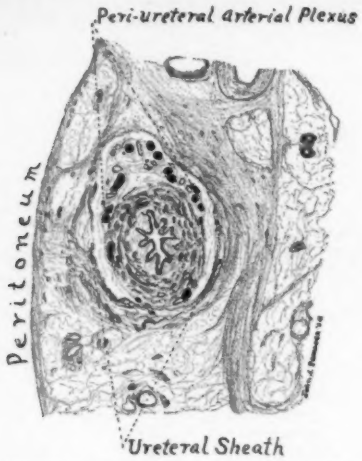


FIG. VII.—TRANSVERSE SECTION OF URETER TAKEN 1.5 CM. ABOVE ITS ENTRANCE INTO THE PARAMETRIUM, × 5.

The internal iliac artery was injected, 1 hour after death, with a 15 per cent gelatine colored with ultramarine blue. The large vessels of the periureteral arterial plexus are shown contrasting with the smaller branches in the walls of the ureter.

The ureteral sheath is derived from the tissue through which the ureter passes and in this situation is adherent to the peritoneum, and in freeing the peritoneum the ureter with its sheath is carried with the peritoneal flap. In uretero-vesical implantations the sheath and the peritoneum should be sutured to the bladder after implanting the ureter into the bladder, in order to relieve the tension of the implantation and to preserve the ureteral sheath and thus protect the ureter and its periureteral arterial plexus.

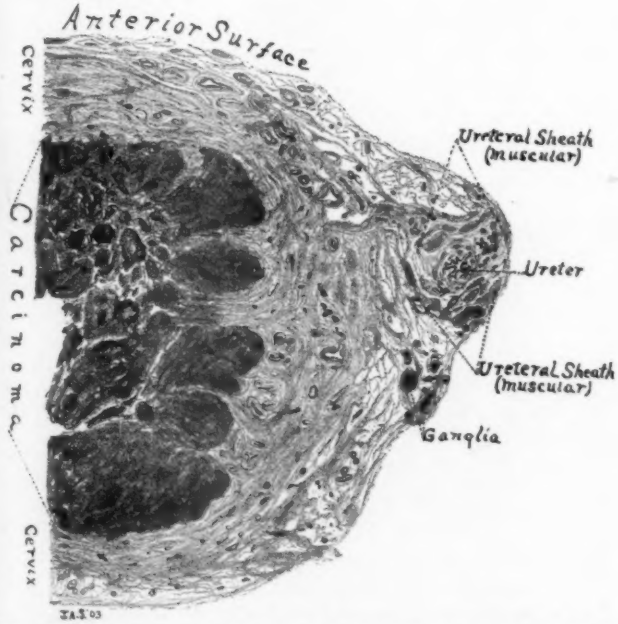


FIG. IX.—RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE URETER, WHERE THE GROWTH IS RESTRICTED TO THE CERVIX. LOWER THIRD OF THE PARAMETRIUM, × 2¼.

From the same specimen from which Fig. VIII was drawn and about 1 cm. below the latter. As in the other section, the distance between the cervix and the ureter is very slight, only 2.5 mm. in this instance, and therefore it would take but very little involvement of the parametrium by the cancer for it to reach the ureter; and, unfortunately, this is the part first involved by the growth (see Figs. XIII and XIV). At this level the fibrous ureteral sheath has disappeared and its place is taken by a sheath of muscle bundles, the so-called sheath of Waldeyer.

Ganglia are also shown.

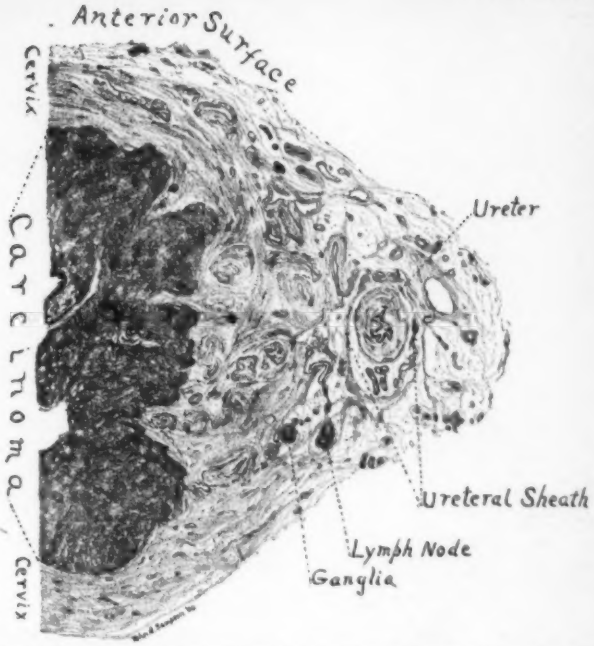


FIG. VIII.—RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE URETER, WHERE THE GROWTH IS RESTRICTED TO THE CERVIX. LOWER PORTION OF THE MIDDLE THIRD OF THE PARAMETRIUM, × 2¼.

Transverse section of the right parametrium and one-half of the cervix from a specimen of hysterectomy for carcinoma cervicis uteri, in which the lower portion of both ureters was sacrificed and the renal ends of the ureters implanted into the bladder. Gyn. No. 10,505. Gyn. Path. No. 6747.

Although there is a wide margin of the cervix about the growth, it would take but very little involvement of the parametrium either by direct extension of the growth or by metastases to reach the ureter, the distance between the two being but 3 mm.

The pelvic fibrous ureteral sheath is shown, surrounding the ureter and its arterial plexus.

A small parametrial lymph node is also shown, to which carcinoma may metastasize.

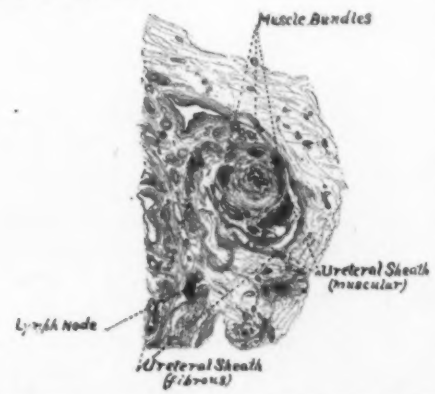
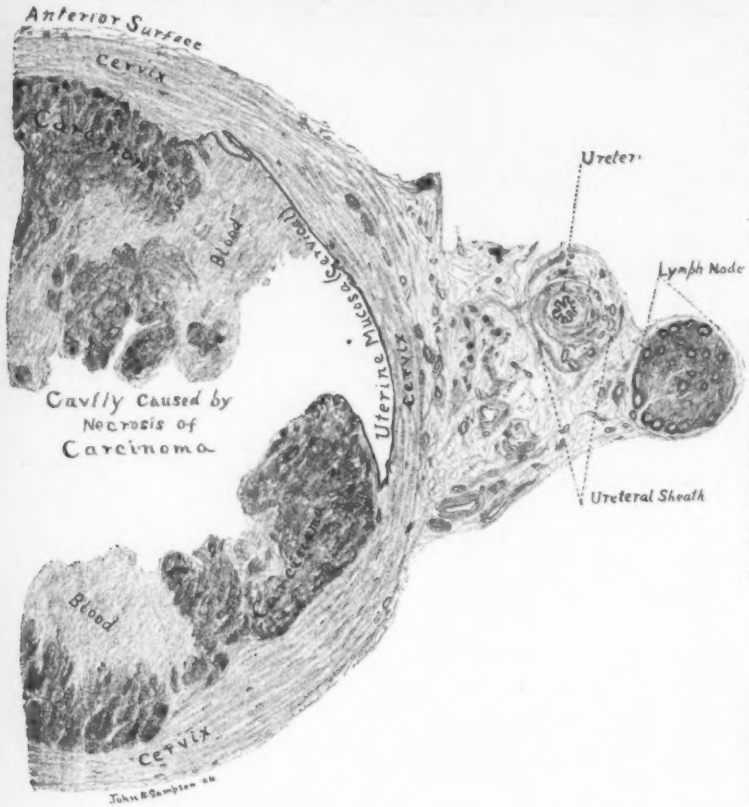


FIG. X.—RELATION BETWEEN THE FIBROUS URETERAL SHEATH AND THE MUSCULAR URETERAL SHEATH (WALDEYER'S), × 2¼.

Transverse section of a portion of the parametrium from the same specimen from which Figs. VIII and IX were made, and about half-way between the two.

In the outer wall of the ureter can be seen heavy muscle bundles, suggesting that Waldeyer's sheath arises from the ureter, as Disse claims, and not from the bladder, as one would infer from Waldeyer's description. Other muscle bundles can be seen just outside the ureter, the remnants of the muscular sheath seen in Fig. IX.

Outside the ureter and the remnants of the muscular sheath can be seen a fibrous sheath, which blends with the muscular sheath and gives rise to the fibrous sheath in Fig. VIII.



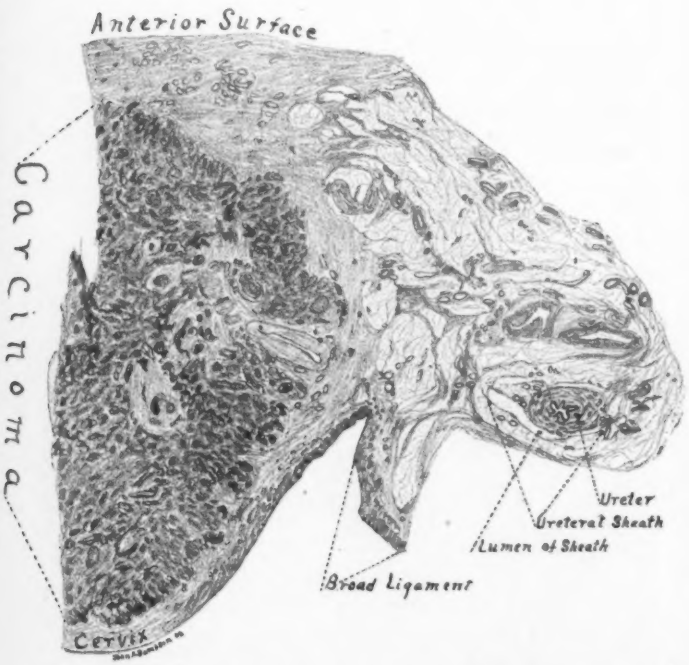


FIG. XII.—SHOWS THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE URETER, IN A CASE WHERE THE PARAMETRIUM HAS BEEN INVADED BY THE GROWTH. UPPER PORTION OF THE PARAMETRIUM, × 2¼.

Transverse section of the right parametrium and one-half of the cervix, from a specimen where both ureters were resected. Gyn. No. 9903. Gyn. Path. No. 6103.

The ureter in this section is over 1 cm. from the cervix and although the parametrium is involved at a lower level (see Fig. XIII), here it is free.

In the upper portion of the parametrium the ureters are further from the cervix than in the lower portion. In the former position the distance may be 2-3 cm., while in the latter, 3-6 mm. Unfortunately, the extension into the parametrium frequently occurs in that portion of the parametrium where the ureter is nearest the cervix.

FIG. XI.—SHOWS THE EFFECT OF DISTENSION OF THE CERVIX BY THE GROWTH. MIDDLE OF PARAMETRIUM, × 2¼.

Transverse section of the right parametrium and one-half of the cervix from a specimen where both ureters were resected, as in the case represented in Fig. VIII. Gyn. No. 10,016. Gyn. Path. No. 6197.

The cervix was about half again as large as in the previous case and its walls are thinned out by the expansion of the growth. In this section the distance between the cervix and ureter is 8 mm., being greater than in Fig. VIII, where the cervix is much smaller, thus demonstrating the variability in the relation between the ureter and cervix; for in two cases in which the ureters were the same distance apart, in the one with the larger cervix the ureters would be nearer the cervix.

The fibrous ureteral sheath and periureteral arterial plexus is shown.

A parametrial lymph node is also shown, which in this instance was not involved.

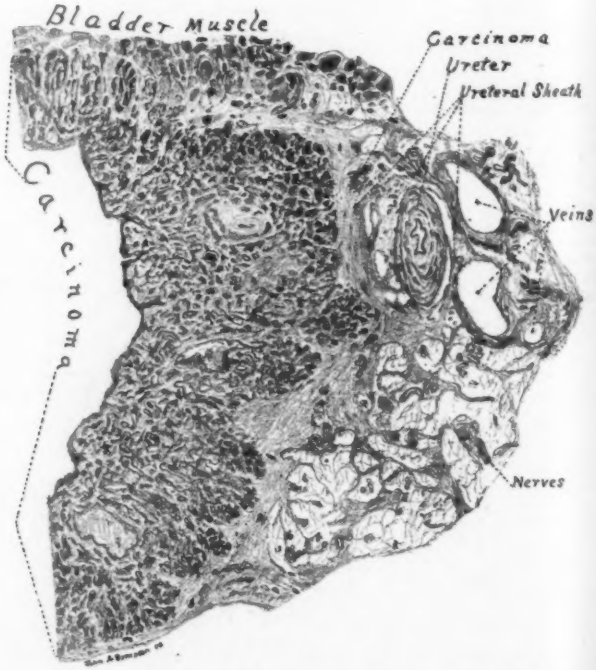


FIG. XIII.—SHOWS THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE URETER, IN A CASE WHERE THE PARAMETRIUM HAS BEEN INVADED BY THE GROWTH. LOWER THIRD OF THE PARAMETRIUM, × 2¼.

From same specimen from which Fig. XII was drawn, only in the lower third of the parametrium.

Compare with Fig. XII and note the more extensive invasion of the carcinoma at this level, how the bladder muscle is being invaded and the ureteral sheath, causing the latter to be hypertrophied, thus better protecting the ureter. Unfortunately, the ureter is nearer the cervix at this level than higher up in the parametrium.

The proximity of the ureter to the utero-vaginal plexus of veins is shown.

In such a case as this the freeing of the ureter without both leaving behind and injuring the periureteral arterial plexus would be very difficult.

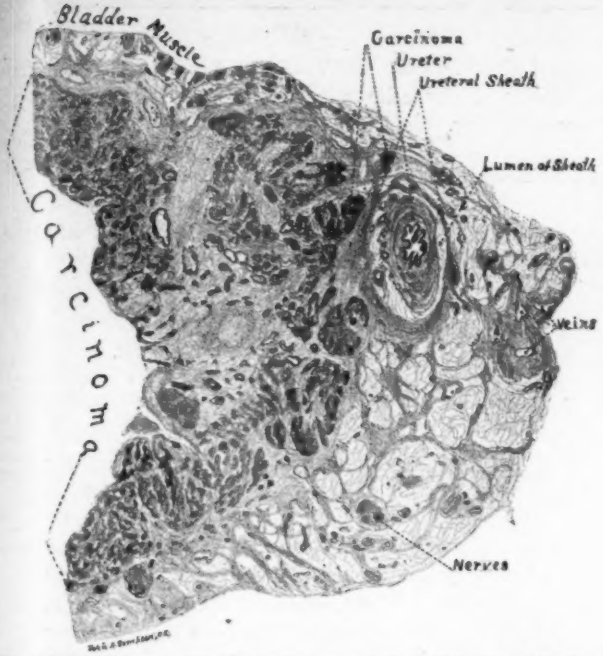


FIG. XIV.—SHOWS THE RELATION BETWEEN CARCINOMA CERVICIS UTERI AND THE URETER, IN A CASE WHERE THE PARAMETRIUM HAS BEEN INVADED BY THE GROWTH. LOWER THIRD OF THE PARAMETRIUM, × 2¼.

Similar section as that shown in Figs. XII and XIII, from another specimen. Gyn. No. 10,494. Gyn. Path. No. 6715. Conditions are very similar to that shown in Fig. XIII.

The ureteral sheath has been invaded by the growth and as a result has become greatly hypertrophied, thus better protecting the ureter and its vascular plexus, which can be seen in cross section. Unfortunately, as in Fig. XIII, the portion of the parametrium involved is where the ureter is nearest the cervix. In such a case the freeing of the ureter without both leaving cancer behind and injuring the periureteral vascular plexus would be very difficult.

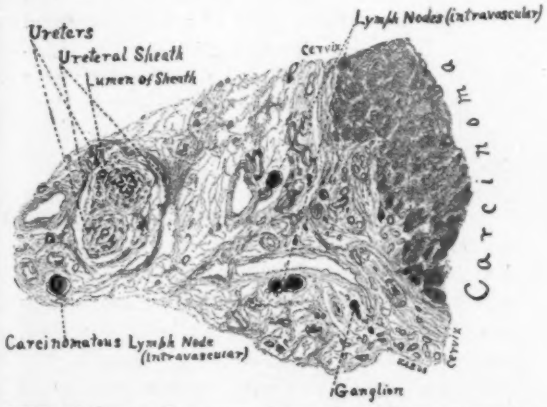


FIG. XVI.—SHOWING RELATION BETWEEN THE METASTASES TO THE INTRAVASCULAR PARAMETRIAL LYMPH NODES AND THE URETER. MIDDLE OF PARAMETRIUM, × 2¼.

Transverse section of left parametrium and portion of the cervix. Gyn. No. 9860. Gyn. Path. No. 6074. The double ureter is situated over 1 cm. from the cervix, and has but one ureteral sheath instead of two, thus suggesting that the sheath is derived from the pelvic structures and not from the ureter.

Four intravascular lymph nodes are shown, *i. e.*, lymph nodes apparently situated within the lymph channels. The one situated lateral and posterior to the ureters is carcinomatous.

The use of the microscope alone could diagnose cancer in the parametrium in this case.

Hysterectomy mesial to the ureter would have left the carcinomatous node in the pelvis.

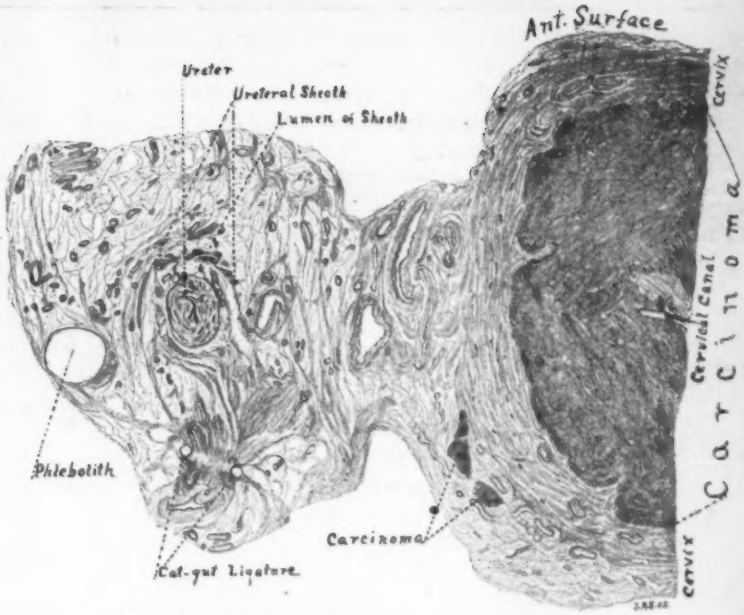


FIG. XV.—SHOWING THE RELATION BETWEEN PARAMETRIAL METASTASES AND THE URETER. UPPER THIRD OF THE PARAMETRIUM, × 2¼.

From same case as sections represented in Figs. VIII and IX, left side instead of right.

The ureter is over 1.5 cm. from the cervix instead of 3 mm., as in Fig. III. This is accounted for by the fact that it is in the upper portion of the parametrium where it may be 2 or 3 cm. from a normal cervix.

The carcinoma in the parametrium just outside of the cervix may be a metastasis to a lymph space or possibly from a direct extension of the growth. I was unable to find any connection with the primary growth.

A phlebolith is shown lateral to the ureter, which in a skiagraph could be mistaken for a ureteral calculus and during an operation might be taken for a lymph node.

Note how a catgut ligature could easily occlude the ureter although not actually inclosing it.

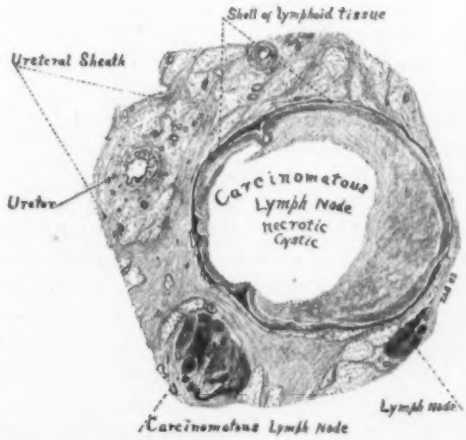


FIG. XVII.—SHOWING THE RELATION BETWEEN CARCINOMATOUS PARAMETRIAL LYMPH NODES AND THE URETER, × 3.

Same case as one represented in Fig. XVI.

This carcinomatous lymph node, which had become necrotic and cystic, is situated lateral to the right ureter and is probably the node sometimes found near the crossing of the uterine artery and the ureter as shown in Fig. XI.

The ureteral sheath is shown and the hypertrophy of its wall next to the carcinomatous nodes thus acting as a protection to the ureter. A small carcinomatous node is also shown and one not involved by cancer.

23. Amann: Ein neuer Weg zur Extirpation der carcinomatösen Uterus. Cent. für Gyn., 1901, XXV, 744-750.

24. Mackenrodt: Die Radikaloperation der Gebärmutter-Scheidenkrebses mit Ausräumung des Becken. Cent. für Gyn., 1901, XXV, 789-794.

25. Budinger: Beiträge zur Chirurgie des Ureters. Archiv für Chirurgie, 1894, XLVIII, 639-682.

26. Witzel: Extraperitoneale Ureterocystostomie mit Schrägkanal-bildung. Cent. für Gyn., 1896, XX, 289-293.

GEORGE CHEYNE, AN OLD LONDON AND BATH PHYSICIAN. (1671-1743.)[1]

By Thomas McCrae, M. D., M. R. C. P.,

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"The palate kills more than the sword."—Old Proverb.

The advice has been given to the younger of our profession to leave the reading of new books to the older men and to devote ourselves to the writings of previous generations. By so doing we may be delivered from what has been termed "an inapt derision and neglect of the ancients." Perhaps too truly might the words of Job be applied to some of us, "No doubt but ye are the people and wisdom shall die with you." However that may be deserved, it does not require much study of the works of those who have gone before to realize that wisdom was not born with us. Much wisdom is of all time and the fact cannot be brought home too strongly. To some of us the acceptance of this comes slowly. There are few impressions stronger than the personal realization that many ideas we are apt to think peculiar to our own time have long since been old. To find certain things dating back to Hippocrates gives one a comforting sense of the permanence of the profession.

There are certain follies common to all times. Many faults of previous generations are those of ours, and the warnings are no less worthy of attention now than then. The prophets in all ages have showed the way for the feet of others. It is with one of these, who lifted his voice specially against intemperance in eating and drinking, that this sketch deals; one who has been called the preacher of moderation.

George Cheyne was one of the Scotchmen who found the "road to London," which has been so well trodden before and since. There have been many in our profession in London who have come from north of the border. Cheyne was one of them. He had characteristics sufficient to distinguish him in any company; not a great man but one who in spite of much infirmity worked long and well. As we shall see, he was in many ways an oddity—at times almost grotesque—but always working and striving for the truth as he saw it. At times he brings Dr. Johnson to mind, and we do not think the less of him for his peculiarities.

There is considerable material available relating to Cheyne. Dr. Greenhill[2] has written a short sketch of his life; the literature of his day and subsequent times contains many references to him, but one of the best records is by himself. He gives his own case in detail in one of his works. As a rule the record of symptoms written by patients themselves is only too tiresome, but Cheyne's throws much light on his characteristics and is of much help in following his life. We are taken into his confidence both here and in many other places in his writings and are thereby enabled to understand much of his curious history.

I. Life.

George Cheyne[3] was born in Methlick in Aberdeen, Scotland, in 1671. Of his immediate family we have little information. He probably belonged to the old Aberdeen family of Cheyne or Le Chien, whose records go back to the thirteenth century. We know little of his early education except that it must have been liberal and thorough. He was intended for the church and his early studies were directed to that end. This insured a good classical training and must have included an extensive study of mathematics and philosophy. He had gained a wide reputation for his mathematical knowledge at an early age. For a time he was a tutor to the Earl of Roxburghe. Why he forsook theology for medicine we are not definitely told, but it seems likely that he came to Edinburgh to study and there fell under the influence of a most unusual man and one of the leaders in medicine of the day. This was Dr. Archibald Pitcairne, a man of great learning, a writer of epigrams and Latin verses, one who did much for the revival of classical learning, but most unorthodox in his religious views and perhaps hardly the best guide for a young theological student. However, Cheyne seems to have taken the good and escaped the evil. There can be no doubt of the influence exercised on him by Pitcairne. In one of his early writings he says of Pitcairne: "I owe him all the acknowledgments in the world, for if ever I shall be able to do anything in medicine it was by him the foundations were laid and by his encouragement and

[1] Read before the Johns Hopkins Hospital Historical Club, March 9th, 1903.

[2] Life of George Cheyne, M. D., by W. G. Greenhill, Oxford, 1846. This was one of a series of Christian Medical Biographies.

[3] It may be noted he is not the Cheyne of "Cheyne-Stokes" fame. That was John Cheyne, born near Edinburgh in 1777 and who practiced in Dublin. He was probably of the same family as the subject of this sketch.

conversation I profited more than by that of all mankind beside." There seems little doubt of Pitcairne having been Cheyne's preceptor in medicine, and some account of him and the condition of medicine at that time will throw light on Cheyne's opinions.

Archibald Pitcairne had been destined for the church but forsook it for the study of law. He went to Paris and there was attracted to medicine, but returned to Edinburgh and took up the study of mathematics in which he attained some fame. Later he returned to France and took his degree in medicine at Rheims in 1680. On returning to Edinburgh he at once took a prominent position and was one of the founders of the College of Physicians in 1681. For some years before this an attempt had been made to carry on medical teaching in Edinburgh. Pitcairne evidently took strong interest in this, and in 1681 he and Dr. Monteath—probably a surgeon—offered to attend the occupants of a house of detention if the bodies of the unclaimed dead might be used for dissection. In 1682 a free dispensary was opened. This was undoubtedly used for teaching and there are records of clinical examinations being held there. The first examination for the license to practice was held in 1683. It seems probable that Pitcairne gave lectures in medicine about this time. He was one of the men making an earnest effort to raise the standard of medical education and to pass regulations which would allow only those properly qualified to practice.

Pitcairne published some medical works, notably one vindicating Harvey's claim to the discovery of the circulation of the blood. In 1685 he was appointed to the Faculty of Medicine. In 1692 he was called to Leyden to fill the chair of medicine. This he resigned in 1693 and returned to Edinburgh.[4] He resumed his prominent position in the profession and doubtless continued his medical teaching. Cheyne evidently became one of his students. That both were celebrated mathematicians was probably a bond, for Cheyne seems to have gained very extensive fame for his mathematical researches at an early age.

Medical opinions at this time were in an unsettled state. Many of the writings of the time show a curious mixture of mathematics and philosophy. A school of medicine had arisen termed the "Iatromechanical or mathematical," in opposition to the so-called chemical school. Its adherents attempted to explain all the conditions in the body, normal or not, by principles applicable only to inorganic matter. The body was considered to be a machine composed of a great number of tubes or systems of canals. Medicine was therefore a branch of mathematics. Bellini, Borelli and Boerhave all held these views. The great advances in mathematics had probably influenced many in accepting these beliefs. It does not seem strange that Pitcairne and Cheyne, with their thorough mathematical training, should have adopted them. But Cheyne was not a blind adherent. He pointed out that the circulation of the blood could not be explained in any such way. The combination of medicine and mathematics has been described as of "the most exact of sciences with the least exact of arts." But perhaps medicine gained some accuracy from the union.

About 1691 Dr. Andrew Brown introduced some of Sydenham's views on fevers into Edinburgh. The profession became involved in a serious quarrel over these and the dispute threatened to destroy the College of Physicians. The controversy was carried on vigorously, pamphlet answered pamphlet, and soon both personal and political strife were added. Pitcairne was one of the strongest supporters of the mathematical school. He became involved in a dispute with Dr. Brown, to whose aid a Dr. Oliphant had come. It is in this strife that we find Cheyne first entering into print. Pitcairne had been attacked for his views on fevers and he planned a general rejoinder. This was to be done by three men; Cheyne and another were to provide the theory while Pitcairne wrote the practical part. But for some reason only Cheyne's article saw the light. It is entitled "A New Theory of Fevers" and was published in 1702. The author

[4] The reason for Pitcairne's resignation was his engagement to a woman whose family refused to allow the marriage if he continued to live in Leyden. He gave up the chair. Boerhave, who had been a pupil of Pitcairne's, was appointed some years afterwards. There was a close medical bond between Edinburgh and Leyden and many Scotch students studied under Boerhave.

says that it was written in haste and was a "raw and inexperienced performance." He says, "I was very young in the Profession and lived in the country. But in a few days I brought in my part finished." It seems to have aroused much interest and went to a fourth edition. To this Oliphant replied, both pamphlets being published anonymously. Cheyne then published a rejoinder from which some extracts will show the style of controversy of the time. This is called "Remarks on the Late Pamphlets Written by Dr. Oliphant against Dr. Pitcairne's Dissertations and the New Theory of Fevers, etc." He opens with some reflections: "No men are more miserable than authors. Let them behave with all the sense and address imaginable, they shall move the spleen of the would-be's, these Insects who make the greatest splutter and noise on the face of the earth. If they write for the whole herd, they raise enemies of the common ones, and if they lay in for the few, they are rebuked for obscurity and pride." Therefore, he concludes, "To write well is only tolerable but not to write at all is the wisest thing a man of sense can do." He for himself would never have entered into the controversy, but his friend, Dr. Pitcairne, had been "assailed by two bloody-minded beasts of prey." He acknowledges some heat in his remarks but how can he do otherwise when his opponent is unable to "manage a debate without weapons from Billingsgate?" There is much sarcasm such as this: "Edged tools ought to be kept from children and madmen and C. O. (Oliphant) should no more be permitted to use pen and ink than to swallow ratsbane and hemlock, for the one will no more infallibly take away his life than the other his reputation." The end of this most amusing pamphlet, only a few extracts of which have been given, is as follows: "That C. O. is an ignorant pretender, an unjust detractor and a false friend; and that his translators are incompetent judges and meddling coxcombs, *qua erant facienda.*"

It is interesting to find Dr. John Brown, in his essay on "Dr. Andrew Brown and Sydenham," referring to the bundle of pamphlets produced in this Edinburgh controversy. "Amid the dreary unreadable rubbish in this old bundle there is a most characteristic onslaught by the famous Dr. George Cheyne upon Dr. Oliphant—it is his pugilistic, honest, reckless style, and is valuable for the testimony he (at this time) a free thinker in religion and a mathematical and mechanical physician, gives to the strictly divine origin of animal species." Dr. Brown here refers to Cheyne's religious views. For a time he was apparently a free thinker. This was doubtless due to the influence of Pitcairne, who held most unorthodox views. It should be said that Cheyne retracted subsequently and made apology for his articles against Oliphant, as also for some of his later works.

The place of Cheyne's graduation was for a long time in doubt. Dr. Greenhill was unable to determine it. The record has been found in Aberdeen. It says, under date of September 8, 1701, Mr. George Cheyne to be Doctor of Medicine, gratis "because he's not onely our owne countryman and at present not rich but is recommended by the ablest and most learned Physitians in Edinburgh as one of the best mathematicians in Europe and for his skill in medicine he hath given a sufficient indication of that by his learned tract *De Febribus* which hath made him famous abroad as well as at home and he being just now goeing to England upon invitation from some of the members of the Royal Society in all probability he may prove ane ornament to our nation as well as to our Society."[1] This note is of interest as giving some idea of Cheyne's position and also suggesting some reason for his venturing to London. At this time Edinburgh did not grant degrees in medicine.

In 1702 Cheyne moved to London. In the same year he was admitted a Fellow of the Royal Society. The records of the Society give his date of election as March 18, 1701, and his admission as May 6, 1702. These dates show his election before he left Scotland, and in fact before he was given his degree in medicine (the Royal Society records say "afterwards M. D."). His admission to the Royal Society may have influenced his coming to London. It seems surprising that such a young man should have been so honored and suggests that Cheyne must have had a wide reputation for his work in mathematics. No reason for his election could be found recorded in the archives of the Society.

In the next year he published "Fluxionum Methodus Inversa." This was a treatise on integral calculus which he himself terms "a book of abstracted geometry and algebra brought forth in ambition and bred up in vanity." The work is said to be evidently that of a mathematician well advanced for that day. But later he considered these as merely "barren and airy studies," and observes, perhaps with regret, that these are "bewitching contemplations, proper only for public professors and those born to estates, and who are under no outward necessities." In the next year Abraham De Moivre, a celebrated mathematician, criticised this work severely. Cheyne replied in a bitter way which he later regretted and for which he made a frank apology. In 1705 he published his work on "Philosophical Principles of Natural Religion." This was the first part of what was evidently intended to be a more ambitious work than any of his previous writings. It was composed for the Earl of Roxburghe. It contains nothing new and has been described as the "barren speculations of an obsolete school of medical thought." In 1715 he published what is apparently a continuation of this work, "Philosophical Principles of Revealed Religion, Containing the Nature and King of Infinities, their Arithmetic and Uses." This and the previous work were published together. In them he mixes mathematics and theology.

Here we may turn to Cheyne's account of himself as given in the report of his own case in "The English Malady." This is too long to give in full but may be extracted. His youth he passed in close study and in great temperance, lead-

[1] Officers and Graduates of University and King's College, Aberdeen, 1510-1860. Edited by Peter Anderson. The New Spalding Club, 1893.

ing a sedentary life, yet at times he indulged in agreeable company and good cheer. The signs of his future malady were evident at that time for he found his digestion easily disturbed. He was subject to tremor and a "disposition to be easily ruffled on a surprise." On his coming to London, at the age of thirty, he changed his mode of life and associated with "bottle-companions and free-livers," for whose friendship it was only necessary to be able to "eat lustily and swallow down much liquor." He frankly avows that he adopted this mode of life to help him in practice. He evidently became very popular and likewise very stout, but in a few years his health became affected and he grew "excessively fat, short-breathed, lethargic and listless." Soon he was seized by a fever from which he rapidly recovered under the use of bark. After a year of only moderate health he was taken suddenly with a vertiginous paroxysm, "so extremely frightful and terrible as to approach near to a fit of apoplexy, and I was forced in it to lay hold on the posts of my bed for fear of tumbling out, as I apprehended." For this he was bled and given large doses of bark, without much help, for "it turned to a constant violent headache, giddiness, lowness, anxiety and terror, so that I went about like a malefactor condemned or one who expected every moment to be crushed by a ponderous instrument of death, hanging over his head." This might be understood as merely a description to give some idea of his misery, but from writings elsewhere the fear of death appears to have been a phobia with him. Soon all his "bouncing, protesting, undertaking companions" forsook him and "retired to comfort themselves with a cheer-upping cup, leaving me to pass the moments with my own apprehension and misery." His conclusion to this chapter must be quoted in full: "I was forced to retire to the country quite alone, being reduced to the state of Cardinal Wolsey, when he said that if he had served his Maker as faithfully and warmly as he had his Prince, He would not have forsaken him in that extremity; and so will every one find when union and friendship is not founded on solid virtue and in conformity to the divine order but in sensual pleasures and mere jollity. This silly circumstance I mention because I thought then it had some share in my succeeding melancholy."

He retired to the country, carried a seton for many months and turned himself into an apothecary's shop. In spite of all his infirmities his mind continued bright and active, while the time was favorable to much meditation, so that we find him turning to set his spiritual affairs in order, believing that he was soon to enter into an "*unknown state of things.*" He consulted a clerical friend who recommended many religious works for his consideration. These he studied faithfully and his final resolution may be quoted: "To neglect nothing to secure my eternal peace, more than if I had been certified I should die within the day; nor to mind anything that my secular obligations and duties demanded of me less than if I had been insured to live fifty years more." Dr. Johnson is said to have recommended this resolution to "be imprinted in every mind." The following spring he was advised to try the Bath waters, which he did with some benefit but soon relapsed. Then he went to Bristol to try the waters there. These, with strict diet and exercise, improved his state, but to no great degree. Here some friend told him of a wonderful cure wrought by Dr. Taylor of Croydon by a milk diet. It is easy to imagine that the patients in Bristol at that time differed in no way from those of to-day. We know how this cure and that is passed from mouth to mouth and how eagerly taken up by such as Dr. Cheyne describes as hypish people. He reflected on Sydenham's and Pitcairne's opinion of the value of milk in various disorders, and accordingly we find him going to see Dr. Taylor, who lived on milk alone. Back to London came Dr. Cheyne and promptly arranged for a supply of milk, which with seeds, bread, mealy roots and fruit composed his dietary. After six months of this he was much reduced in flesh and improved in health but suffered from constant pain in the stomach (probably due to hyperacidity, we should suppose from the account of his symptoms). During all this time he kept at work, in the summer in Bath and in the winter in London, devoting himself more especially to chronic and nervous cases, all of which, he says, who can afford it, arrive at some time in Bath.

After this he returned to ordinary diet, never taking above one quart or three pints of wine a day (a commentary on the drinking habits of the day when this was considered moderate), and had good health for many years. But with this he gradually grew in bulk until he weighed 32 stone (448 pounds). This gave him great distress and he was hardly able to get about. He could not walk up more that one pair of stairs without "extreme pain and blowing," and if he had any distance to walk his servant had to follow him with a stool for him to rest on. It is probably about this time that the description given of him in "The Gold-Headed Cane" applies. A consultation on Bishop Burnet is described. He was a relative of Dr. Cheyne, by whom he was attended. "On the other side was Dr. Cheyne, a Scotchman, with an immense broad back, taking snuff incessantly out of a ponderous gold box, and thus ever and anon displaying to view his fat knuckles; a perfect Falstaff, for he was not only a good portly man and a corpulent, but was almost as witty as the knight himself, and his humour being heightened by his northern tongue, he was exceedingly mirthful. Indeed, he was the most excellent wit of his time, a faculty he was often called upon to exercise, to repel the lampoons which were made by others upon his extraordinary personal appearance."

Soon once more his health declined and he suffered from many troubles, among them severe attacks of erysipelas, which occurred at intervals of three months for two years. His first attack was very severe and he greatly feared a fatal issue. However, he gradually recovered fair health for a time on his previous diet of milk and vegetables. Soon an attack of the gout came with which he suffered for some weeks, and after this all his old symptoms returned, "sickness, reaching, lowness, watchfulness, eructation and melan-

choly; that life was no longer supportable to me and my misery was almost extreme." Then follows a most graphic description of his sufferings. His symptoms were "a perpetual anxiety and inquietude, no sleep nor appetite, a constant reaching, gulping and fruitless endeavor to pump up flegm, wind or choler, day and night, a constant colick, an ill taste and savor in my mouth and stomach; a melancholy, fright and pannick *wherein my reason was no use to me;* so that I could scarce bear the sight of my patients or acquaintances, that had not been daily about me, and yet could not bear being a moment alone, every instant expecting the loss of my faculties or life." There is no difficulty in diagnosis here; one need not hesitate. His remedies were as many as his symptoms—emetics, tobacco, bark, Bath waters, fœtids, gums, volatiles and viper's powders among others. At last he takes to opiates, "which I knew were a slow poison but one will stop at nothing for even a moment's respite in such extremities." During this time he kept at work and went about, though in great misery. His friends pressed him to go to London, which he finally did, and consulted some of his London colleagues. Six of them were called to the consultation, among whom were Dr. Arbuthnot and Dr. Mead. They advised him to stop the opiates and gave some general directions. He probably acted on the first but made up his mind to go back to his old regimen. This he did and practically kept to it for the rest of his life. Even an ounce or two of animal food was enough to give him suffering. After two years of gradual recovery he was able to consider himself well.

Regarding his diet he expressly states that no one is likely to be brought to it who has not suffered greatly. But he is careful to state that the common diet with temperance is best for the generality. Even after this he at times indulges too freely in his diet of vegetables and nuts, with warnings in the form of attacks of gout or erysipelas. His ordinary diet in the latter part of his life was milk, tea, coffee, bread, butter, cheese, fruits, seeds, vegetables—at no time flesh or alcohol.

Lastly he addresses some words to others who may like himself be afflicted. Those who may do as he has done are likely to be only "low valetudinary, dying, miserable creatures," but he expects only derision from "the brave, the bold, the intrepid, the heroic and who prefer death with a bounce to life on such conditions as I propose." Aptly does he observe that "Milk and honey was the complexion of the land of promise, and vegetables the diet of the Paradisiacal state."

During this time he published an essay on the Gout and an essay on Health and Long Life. These were written for the public and it is not strange that they should have excited attention, much of it ridicule. Cheyne was apparently the butt of many jokes and jests but seems to have been able to defend himself. He was represented as holding absurd views as to diet, whereas over and over again he points out that his advice to the healthy is to leave well alone. The attitude of many towards him is well put by Wesley, who says of one of his works, "It is one of the most ingenious books which I ever saw. But what epicure will ever regard it, for the man talks against good eating and drinking?" Young in the "Epistles to Pope" says,

"—three ells round huge Cheyne rails at meat."

He seems to have taken these sallies in good part and his usual answer might be summed up in the words of the old proverb "The proof of the pudding is in the eating." If one is well, leave well alone. If one is sick, the remedy is simple and can easily be tried by experience. As he says, "surely he knows the road better who has gone to and come from the Cape of Good Hope, and tried all the soundings, rocks, shelves and winds, than those who have only seen them in the map." Some of his exchanges with professional brethren were serious, others were amusing, such as his reply to Dr. Wynter, which may be quoted.

DR. WYNTER TO DR. CHEYNE.

"Tell me from whom, fat-headed Scot,
Thou didst thy system learn;
From Hippocrates thou hast it not
Nor Celsus nor Pitcairn.

Suppose we own that *milk* is good
And say the same of *grass;*
The one for babes is only good,
The other for an *ass.*

Doctor! one new prescription try,
(A friend's advice forgive)
Eat grass, reduce thyself and *die,*
Thy *patients* then may *live.*"

To which Dr. Cheyne made answer:

"My 'system,' Doctor, is my own,
No tutor I pretend;
My blunders hurt myself alone,
But *yours* your dearest friend.

Were *you* to milk and straw confined,
Thrice happy might you be;
Perhaps you might regain your mind,
And from your wit get free.

I cannot your prescription try,
But heartily forgive;
'Tis natural you should bid *me* die
That you yourself may live."

Cheyne had a large practice, working in London during the winter and at Bath during the summer. Many of his patients suffered from like maladies to his own. Among them was David Hume, who at the age of eighteen had a severe attack of depression for which he was treated successfully by Cheyne. Pope was under his care, for he writes, "Dr. Cheyne was of Mr. Cheselden's opinion that bleeding might be frequently repeated with safety, for he advised me to take four or five ounces of blood every full moon." Samuel

Richardson appears to have been one of his intimate friends. There are a number of letters from Cheyne to him, in some of which is advice regarding the writing and plot of "Pamela." Richardson suffered for some years from nervous disorder and was under Cheyne's care. He had evidently been put on restricted diet but longed for the flesh pots of Egypt, and we find Cheyne rallying him on his lack of courage and making the attempt to cut down his diet gradually—"You must absolutely *die* to them that you may *live*." Cheyne writes encouraging letters to him when progress seemed slow: "You must have faith, perseverance and patience, which are sublime *Christian* as well as *nervous* virtues." One passage is of interest as giving Cheyne's ideas of the "hyp." "You have quite a wrong notion about the hyp, as in truth all but sensible physicians have. We call the hyp every distemper attended with lowness of spirits, whether it be from indigestion, head pains or an universal relaxed state of the nerves with numbness, weakness, starting, etc." He strongly advises Richardson to have a hobby and suggests billiards as very suitable.

The literature of the day contains many references to Cheyne. There are several in Boswell's Life of Johnson. There are many stories of Cheyne and Beau Nash. Some of them are almost classical.* Although intimate with many of those belonging to the College of Physicians of London, Cheyne never became connected with it. The latter end of his life was peaceful and he died at Bath in 1743, aged seventy-two years. He was buried at Weston near Bath. A recent search failed to find his grave in the churchyard there. Several references to his death are preserved. One written by a patient—whose malady is evident—may be quoted.

> "He saw, heard, pitied, paused and smiled serene,
> Aid in his eye! Compassion in his mien!
> Heard me long years of aidless anguish moan!
> Physick's last labours! dear bought skill unshown!
> Heard my sad sighing heart's long weary tale,
> Traced its dark cause and hit the unheeded nail.
> Life shall henceforth and Health be yours, he cryed,
> Bear but a few short weeks. He said—and died!
> Would I were now the ghost I soon must be!
> Haste my new Doctor, Death, and set me free."

In concluding the account of his life the words of Socrates relating to Herodicus seem to be specially appropriate: "for he had a mortal disease which he perpetually tended, and as recovery was out of the question, he passed his entire life as a valetudinarian; he was in constant torment when he departed in anything from his usual regimen, and so dying hard, by the help of science he struggled on to old age."—Plato, Republic, III, 406.

* Nash was asked by Cheyne if he had followed his last prescription, but replied in the negative, saying, "If I had I should certainly have broken my neck, for I threw it out of a two pair of stairs window."

On one occasion Nash brought a friend to consult Cheyne about an abdominal swelling. Cheyne pronounced the swelling to be due to a collection of water and said it should be tapped. "It cannot be water," said the patient, "it may be wine." "No, no, my good fellow," said Nash, "if it had been wine you would long ago have tapped it yourself."

II. WRITINGS.

In considering these it has to be kept in mind that they were intended rather for the public than for the profession. At that day this was quite commonly done and not thought improper. Yet there was evidently some criticism of this, for in the preface of one of his books Cheyne defends himself against the charge of writing for the public. In saying that he does not believe his professional brethren would object to his trying by good advice to reduce the *materia morbifica*, he proceeds: "I never entertained the most remote vanity to think any endeavor of mine would make so considerable a change in the nation; especially where the Devil, the World and the Flesh were on the other side of the question."

It seems best to consider his works separately. They are nearly all alike in containing some philosophy with a flavor of mathematics in addition to the more strictly medical material. Religious matters are frequently considered, for Cheyne showed to some extent "the angelical conjunction of medicine and divinity." But throughout he preaches the great lesson of temperance both in eating and drinking.

The New Theory of Fevers, 1702.—This was his first work and was written in defense of his preceptor, Dr. Pitcairne. The name of the author was not given, for Cheyne himself felt it was "raw and inexperienced." This work contains little of interest. Mathematics occupy a large place. The theory is set forth that fever is due either to obstruction or dilatation of the canals of the body. In later years he did not consider it worthy of revision but threw it by "as unripe fruit and suffered it to be as if it had never been." The most striking thing about this work is that it was written by a medical student. In the controversy among the profession of Edinburgh which called forth this book and to which reference has already been made, the pamphlet mentioned in reply to Dr. Oliphant was produced.

In the next year, 1703, he published a mathematical work, "Methodus Fluxionum Inversa." This was the means of engaging him in controversy again, which called forth a frank and sincere apology in later years. In 1705 appeared the first part of his work on the "*Philosophical Principles of Religion.*" This dealt with the association of natural philosophy and religion. These were apparently some of the lectures he had prepared for his pupil, the Earl of Roxburghe, and were used in some of the universities. In 1715 a second edition was published with an addition on revealed religion.

An Essay of the True Nature and Due Method of Treating the Gout.—This was published in 1720 and ran through eight editions. It was written partly by accident. He gave directions to his friend Richard Tennison, who had gout, as to how he should manage himself. Unauthorized copies were made, and to prevent these from being published he was compelled to bring out the work himself. He gives his idea of

the nature of gout. The vessels of the body are tubes, which may be small by nature or have become so by old age. Salts collect and obstruct these tubes, pain results as the channels are smaller. This is worse at the joints, for here the tubes are smaller and are subject to compression by the prominence of the bones. Gout is usually in strong people of good constitution for their vessels are stiff and springy. It is due to the abundance of tartarous, urinous or other salts introduced into the blood. Of these salts he says they seem neither to perish nor to be begotten. An attack of acute gout is an effort to throw off the abundance of salts through narrow and stiff strainers. Therefore the methods of cure are, (1) widen the vessels and (2) lessen the quantity of salts introduced. Hereditary gout can only be helped, but acquired gout is easier of treatment and especially by diet. The treatment comes under (1) exercise, which must not be too much or we have greater hunger and more food taken, (2) diet, under which the red meats are forbidden, (3) evacuations, such as purges, (4) drugs, of which sulphur is probably the best. Opium is only to be given for pain, (5) waters, especially those of Bath. He advises cold bathing in certain cases. He discusses the manifestations of irregular gout at some length, under which he includes all symptoms other than those in the joints. These rarely come alone, for irregular gout usually brings the stone; "it seldom comes to pass that any one is much troubled with the gout but he has the stone at last." He considered the chalk stones and calculi to be essentially the same.

Throughout the work he preaches temperance, which alone can prevent the gout or effectually cure it. With that he extols the use of Bath waters. In conclusion he agrees with Sydenham (they agreed also in having had personal experience of the disease) that treatment is of but little avail, "For let us, or our brethren the quacks, brag what we will,

Tollere Nodosam nescit Medicina Podagram."

An Essay of Health and Long Life.—This was published in 1724. It is said that the original title was "A Treatise on Sanity and Longevity," but the bookseller refused to print the book unless the title was changed. It ran through ten editions and was translated into Latin, French and German. To the Latin edition "De Natura Fibræ" was added. This is often considered the best of Cheyne's works. During the writing of it his own health was very bad and perhaps it was natural that he should have announced it as his last work. In the preface he states that he is casting up his accounts with the world and asks pardon for the severity of some of his earlier writings. The book was produced casually. His friend Sir Joseph Jekyll asked for instructions as to the care of his health. Cheyne drew these up as a set of rules, but on consideration thought that philosophical reasons should be added out of respect for his friend's intelligence.

This work, he insists, will not appeal to the young and robust but only to the sickly and aged, the sedentary and members of the learned professions. It is not for the robust, the luxurious, the pot-companions, the loose and abandoned, for "their time is not yet come." The constant theme is that it is easier to preserve than to recover health and to prevent than to cure disease. Over-scrupulous attention to our health is folly; only moderate and proper care is necessary.

He discourses at length on meat and drink. The frequent error of taking too great quantities of food is especially emphasized and instances of long life on little food quoted. For an ordinary man, not a laborer, he suggests eight ounces of meat, twelve of vegetables or bread and a pint of wine a day as sufficient diet. But valetudinary and sedentary persons ought to take even less. Most of the chronic diseases, the infirmities of age and the short lives of Englishmen are due to repletion. The remedy for this is evacuation, purging, bleeding, vomiting and sweating. But he asks, why not omit one meal, leave off meat and liquors and do practically the same thing? As soon as those of sedentary life or professional occupation have any heaviness, inquietudes, restless nights or aversion to occupation, they should lessen their food one-half or go on to vegetable diet. He gives the rule that if one is unfit for duties or studies one hour after a meal, too much has been eaten.

To alcohol much attention is given and more of condemnation than of commendation, although he is careful to point out that he has no intention of trying to "discourage the innocent means of enlivening conversation, promoting friendship, comforting the sorrowful heart and raising the drooping spirits by the cheerful cup and the social repast. Persons sober in the main will receive little prejudice from such a fillip when the occasion happen but seldom."[1] It is the abuse which he combats. Many of his sayings are worthy of quotation, as "strong waters should never be taken but by the direction of a physician or in the agonies of death. For when persons arrive at that stage that they become necessary to their ease and freedom of spirits, they may be justly reckoned among the dead both as to the short time they have to live and the little use they can be either to themselves or mankind." While his remarks as to the use of spirits are severe, it is regarding punch that he grew specially emphatic. He considers it like opium in its nature and nearest arsenic in its deleterious and poisonous qualities. Fielding makes a reference to this in saying that Cheyne termed "drinking punch pouring liquid fire down your throat." Of tea and coffee he considers their virtue to consist in custom and all their harm in excess. "Life is not weak enough to be destroyed by this pop-gun artillery of tea and coffee." In using tobacco he warns against "swallowing the smoke."

Exercise he advises with caution in regard to its being done on an empty stomach, not to fatigue, with care after perspiration and always with moderation. Of cold bathing he speaks with approval. The evacuations are discussed at

[1] We may remember how well this point of view was put by Oliver Wendell Holmes in "The Professor at the Breakfast Table."

length. He devotes some attention to mucous colitis and describes the associated neurotic condition.

It is not strange that the passions should figure prominently. Dark melancholy, slow and long grief, hopeless love and overweening pride—which is self-love—may all wear out the nervous system. "Long and constant habits of fixing one thing on the imagination begets a ready disposition to the nerves to produce again the same image till the thought of it becomes spontaneous and natural and also a disability ensues on the other parts." Of another kind of melancholy he says: "it is called religious, although often the persons so distempered have little *solid piety*. This melancholy arises from a disgust or disrelish of worldly amusements and creature comforts, whereupon the mind turns to religion for consolation and peace. But as the person is in a very imperfect and unmortified state there ensues fluctuation and indocility, scrupulosity, horror and despair."

To the rules of life that the aged should observe he gives much attention. Care in their surroundings, the avoidance of exposure and a steady lessening in their diet are most important. Aged persons become children as regards their digestion and should diminish their diet. He has much to say of chronic diseases. One of his sentences might well be given to many of our patients. "It is surprising that reasonable men can imagine that in any small time any possible methods or medicines should cure or even sensibly relieve a distemper that perhaps was brought with them into the world and interwoven with the principles of their being, or may have been ten or twenty years abreeding." He uses the illustration of the revenues of an estate as comparable to the wasting or undue spending of health and energy. The whole argument may be summed up as the observance of the golden mean

—servare modum, finemque tueri,
Naturamque sequi—

The English Malady.—This was published in 1733 and ran through six editions. Cheyne had written it some time before and intended it to be produced as a dying speech, but his friends persuaded him not to defer its publication so long. The title suggests an immediate question as to the nature of the disease described. Were it written now the name of another nation would probably grace the title-page, for in this "westward the course of empire takes its way." The book treats of functional nervous diseases and might be described as a treatise on hysteria, neurasthenia and hypochondriasis. It is difficult in a short sketch to do justice to any of Cheyne's work, but this is especially true of this one. It aroused much interest then and later. Dr. Johnson often refers to it. M. Grosley, who visited London in 1758 and wrote a work, "Londres," speaks of this book and discusses the theories as to what Cheyne describes. It may be mentioned that he suggested a panacea for these ills in the form of light French wines.

Cheyne well uses the lines beginning "Facilis descensus Averni" as a motto. The title, he explains, is a name given in reproach by foreigners to nervous distempers, spleen, the vapours, etc., which are all too common in England. He opens with a description of the terrors of nervous disorders, which he considers the worst. "Tho' other evils be a burden yet an erected spirit may bear them, but where the supports are fallen and cover the man with their ruins, the desolation is complete." No distinction is made between organic and functional disease. Throughout he dwells on the importance of heredity as a causal factor: "A poor creature born subject to nervous distempers has no more reason to complain than a child whose father has spent his worldly fortune and left him poor and destitute." But even for these he holds out hope, and one of the best lessons he teaches is the importance of such nervous cripples learning how best to live. They must know their limitations: "no art hitherto known can make an eagle of a wren." But he notes, and how truly, that under proper care such people may get more out of life, especially in its intellectual side, than the more robust. He is fond of the idea that people who start with little nervous force, by care and moderation, are likely to be at forty as well off as those who started with more but wasted more: "every wise man has a *youthhood* once in his life—age recompenses the caution, care and sufferings of their younger days."

Then follows his constant view, that the chief cause of men's suffering is what they "swallow down." They may ascribe it to various other causes, but overeating and drinking are the real ones. Luxury and disease advance together.

The second part deals with the treatment of nervous disorders. The methods savor of the time. Calomel and antimony are most necessary. Many drugs are referred to and special praise given to Jesuit's bark. The advantage of combining purgatives with iron is emphasized. Then comes the discussion of diet. The same general rules as laid down in the earlier works are repeated. For the nervous he advises some hobby or amusement. The symptoms of nervous maladies are given at length. They are largely those of hysteria or neurasthenia, but a few of organic disease are included, which relate principally to hemiplegia. Insomnia was evidently as frequent then as now. It would take too long to notice all the sections of this book. One point is of interest; he notes that the nervous patients rarely like to be told the nature of their ailment. Many deny its existence, but "this disease is as much a bodily distemper as the smallpox or a fever." He quotes many illustrative cases. Among these is the celebrated one of Colonel Townshend, who was apparently able to stop the action of his heart for a time. Cheyne notes having seen him do this, and thought the experiment had been carried too far, he was so long in reviving.

The volume ends with the author's account of his own case, a most amazing story, and one which has been largely quoted before. He points many a moral from himself. This work rather differs from his others. There is less of general theory and more of deduction from actual observation. Dr. Johnson wrote to Boswell: "Read Cheyne's English Malady, but do not let him teach you a foolish notion that melan-

choly is a proof of acuteness." Here he seems to do Cheyne an injustice. Johnson had no evident idea of any distinction between hypochondriasis and what we term neurasthenia. Cheyne evidently saw the distinction, and points out that the neurotic patient, if he lived rationally, despite his infirmity, often got more real pleasure out of life than the more phlegmatic individual. He had periods of misery, but these were more than offset by the keener appreciation of pleasure.

He uses one explanation as to why these disorders were so prevalent. We use it to-day. It is that the conditions of *modern life* are largely responsible and have produced this class of distempers. Doubtless Charon could give some idea of the antiquity of this view.

Essay on Regimen, 1740.—This ran through three editions and was translated into Italian. Cheyne seems to have considered it his best work, but it was not the most popular. Arranged under the heading of discourses it perhaps savored rather of a sermon, and there is much of both mathematics and philosophy mixed through it.

True philosophy he defines as the science of living the most happily through the whole period of our existence. Physick is only a part of it. To excuse his perhaps tedious writings it must be remembered that old men are as children and must have their rattles. He, for his part, prefers to play with ideas and philosophical conjectures than to dwell on the dark side of things that lead to Pyrrhonism, fatalism, infidelity and despair. These doctrines may help others in the middle state between the two worlds.

He begins with a general discourse and asks a question we are busily trying to answer yet. "What is it then that art, physick or a philosophic physician can truly do to relieve the miseries, pains and diseases of our fellow-creatures?" His answer to the question is the book. We may think that perhaps he is hardly correct in holding that diet alone, "proper and specific diet in quantity, quality and order," is the one thing needful to which all the other blessings will then be added. With diet he includes the drinking of water, the sole use of which as a beverage will ensure a happy and long life. But always in diet the quantity is of more consequence than the quality. His general rule for diet is that for those who are sedentary or destined for such a life, from birth to fifteen to use a temperate diet without liquors, from fifteen to fifty to be only temperate in animal foods and fermented liquors, after fifty to give up animal food, suppers and fermented liquors, after sixty to give up all animal food, and then every ten years to lessen about a quarter of the quantity of their food. For those who by heredity are prone to illness these should be still further reduced.

In lowness of spirits there are three remedies short of medical care; first, a vomit; second, exercise, bathing and rubbing, and lastly, the lightest food. To all such, especially if they be thin, he advises an abdominal binder or support. Then are given thirty-seven aphorisms for the valetudinarian, of which two may be quoted.

Aphorism 8.—He that would be soon well must be long sick, that is, treat himself as a valetudinarian in most things.

Aphorism 14.—He that is old when he is young, that is, treats himself as a wise old man does or ought to do, by great temperance, air and exercise, if he lives past thirty-five will be young when he grows old in years.

The second discourse treats of the use of animal and vegetable food. There are many philosophical conjectures of little interest. The origin of evil is discussed, and we are compared to slaves laboring at the oar hoping for deliverance. He wanders off into theological and philosophical matters. Animal food he considers to have been allowed as a punishment to the race. The bodily discomfort following its use will perhaps turn us to better things. Animal food was permitted and fermented liquors not forbidden, therefore there is neither virtue nor vice in the use of them absolutely but only in the manner of their use.

A great part of the work deals with mathematics, philosophy and theology. One is inclined to say that his common sense is better than his theology, yet there is one idea on which he puts special emphasis, namely, that the intellectual and spiritual welfare must depend partly on the bodily state; "a sick and diseased person seldom perceives truly nor reasons justly." The moral qualities must be bound up with the bodily ones. He touches on predestination and foreknowledge, but owns their difficulties of explanation.

The Natural Method of Cureing the Diseases of the Body and the Disorders of the Mind Depending on the Body.—This was his last work, published in 1742, the year before his death. It was dedicated to the Earl of Chesterfield, who in writing to Cheyne in acknowledgment speaks of his own bad health and refers to his intention of taking the waters again, saying: "I find my shattered tenement admits of but half repairs and requires them annually. The *corpus sanum* which you wish me will never be my lot, but the *mens sana* I hope will be continued to me, and then I shall better bear the infirmities of the body." This book went through five editions and was translated into French. It consists of three parts, the first treating of the economy of nature in animal life. This is largely philosophical and of no special interest. The second part treats of the means and methods for preserving life, health and serenity. Health, cheerfulness and activity all consist in the proper performance of certain bodily functions. The "too much" or the "too high" in food interfere with these. Alcohol is condemned throughout. An overdose of it may make a man as mad for a time as any one in Bedlam, and in the same way a surfeit of strong, high food will "sink, depress and disable" a man as much from all rational thinking and action as habitual melancholy and hypochondriasm.

The third part discusses the nature and cure of chronic disorders. Many diseases are discussed. He has an interesting word on the use of water in dropsy. "It is a vulgar error that water drinking is of dangerous consequence in this case; nothing is more false. And I have known many a dropsy in free drinkers prevented by drinking nothing but water, as it alone infallibly cures an anasarca at last if early begun." Of the outlook in ascites he takes a gloomy view. "A true formed ascites is no more to be cured than a confirmed phthisis from

putrifyed lungs or tubercles. All that can be expected is a mere palliative cure. All violent remedies, as strong vomits, purges and diuretics, are precipitating fate only at the expense of a little present relief."

There are many directions as to care in diet, and he answers objections to his views. As one of his final admonitions he says, "If a man after forty, though in perfect good health, begins not to study regimen and manage his diet at least in quantity, I conclude him neither physician nor philosopher." He brings out the argument that care in living is surely worthy of practice if only to attain happiness and serenity for the seventy or eighty years of this life, but if we contemplate a future existence "is it not madness to deviate from a path which leads to a happy Eternity!" And among the things to be striven for are "above all a clear conscience, beneficent temper, peaceful resignation and well-grounded hope which

'Summum nec metuat diem, nec optet.'"

Throughout his writings we have a curious mixture of speculation and sound observation. The profession slowly learned that the theory of tradition was not necessarily right, and that correct deduction from accurate observation was more important. The gradual appreciation of this can be read in Cheyne's writings. As he observed more he trusted more to his own experience. As the Earl of Chesterfield said in writing to Cheyne of one of his books, "The metaphysics may be true, but they are guesswork, while the part founded on knowledge and experience is a work of public utility."

His style is vigorous and has the characteristics of the time. He has the art of putting things forcibly, but not the power to keep out much which seems unnecessary. Everywhere common sense predominates and there are few essential points regarding diet to be added. Temperance is his theme throughout. The gospel of work is also preached; "no voluptuous or lazy person, unless he had an original constitution of brass, was ever a long liver."

The change in his writings is evident. We have seen the too bitter animosity of his pen in the early controversies of his career. As life goes on he mellows, regret is expressed for his harsh words and pardon asked for them. Some extracts from his last work, produced shortly before his death, will show the spirit in which he writes. Speaking of his hopes and aims to help others, he says: "I may have deceived myself, but if I know my own heart have not a single temptation to deceive others. My age is little short of seventy years, at which time in life a thought of adding to my reputation or to my purse would be extreme folly. The first is now at the disposal of the public, the latter will soon be in the hands of my executors.. But though I should convince the world I must not expect to convert it. . . . As the time is hourly stealing on when art can do no more, an observance of these rules will be the calmest and easiest way of laying down in death."

III. Aphorisms and Sayings.

Many of these have been quoted before, but some others may be added. They can hardly be put in a connected form.

"This universal infirmary, Bath."

"He that would have a clear head must have a clean stomach."

"He that despiseth little things (in health) must perish by little and little."

"Too great nicety and exactness about every minute circumstance that may impair one's health is to die for fear of dying."

"It seldom comes to pass that any one is much troubled with the Gout but he has the stone at last."

Of alcohol he has little good to say. He did not deny its place and use, as some previous quotations show, but in general he has only condemnation for it.

"Fermented or distilled spirits are the true Pandora's' box."

"More than very small amounts of spirits come of sin and must be diluted with the waters of repentance.'"

"Spirits have made more havoc among nations by far than gunpowder. But always the least is the best of all fermented liquors whatsoever."

In reference to the relation of physician and patient he has many good sayings.

"Fine folks use their physicians as they do their laundresses, send their linen to them to be cleaned in order only to be dirtied again."

"It is become the reproach of physick and physicians that acute cases cure themselves (or rather nature cures them) and chronical cases are never cured. But both branches of the reflexion are equally false." Of chronic cases he says:

"If due care be had to follow timeously the advice of an honest and experienced physician, a period certainly may be brought about to most chronical disorders, where the great viscera are not spoiled and destroyed. The failing is in the patient himself, who will not or cannot deny himself for a time sufficient to bring about a cure."

"London houses are made to last fifty years, country houses for five hundred. With some the common way of dealing with their patients is constantly to blow the fire, as with a pair of smith's bellows, till they blow it out or in a few blasts consume it to ashes. The method I would insinuate is to take out the ashes and dead coals, keep it open and give it air, and then it will burn as long as the nature of the materials will allow. One long-lived glutton or drunkard kills more by his example than Hippocrates ever saved."[1]

His formal aphorisms were thirty-seven in number. An example of them may be given:

13. Every wise man after fifty ought to begin to loosen at least the quantity of his aliment, abating gradually and sensibly, and at last descend out of life as he ascended into it, even into the child's diet.

32. Fifty was designed as the meridian of life in this our lapsed state and duration on this ruinous planet; from this soltitial point it is a descent out of life. The hyperbolic curve of life is at the point of its return downwards again, and if care be taken to put

[1] We have the same idea in our saying of to-day that "It is the clinkers that kill." One wonders how Cheyne would have regarded the statement of Panurge that there are more old drunkards than old physicians.

a drag on the wheels of life they may go down gently, calmly, and serenely.

35. Nature dissolves the body gradually "till like a dying vegetable she has fitted it in the earth from whence it sprung."

I hope you feel with me that in George Cheyne we have a man well worthy of being kept in remembrance both for his work and for himself. He preached temperance to an intemperate generation and—as he himself says—such a one is never popular. He doubtless rode his hobby too hard and too far, but was always on the better side of the error. The literature of his day and the many references to his views show how much influence he had. That he should have dabbled in philosophy and theology, speculating on the origin of evil, dwelling on predestination and like difficult matters, is perhaps not strange when we remember his nationality and training. Always "dying for fear of dying," a lifelong valetudinarian, he gives us an essay on health and long life; racked by the gout, he writes a treatise on it with advice to his friend and philosophical reasons therefor; neurotic and a prey to every "hypish" imagination, he produces "The English Malady." Truly to him might the words of Socrates be applied, "Now the most skillful physicians are those who from their youth upward have combined with the knowledge of their art the greatest experience of disease; they had better not be robust in health and should have had all manners of diseases in their own persons." Plato, Republic, 3, 408.

The study of his works gives one the impression of a likeable man. One feels that he was sincere in his endeavor to help those afflicted like himself—a Falstaff, if you will, but without his vices and with more than his virtues. I have already compared him to Johnson, one more of whose allusions to Cheyne may be quoted: "'All is best,' says Cheyne, 'as it has been except the errours of our own free will.' Burton concludes his long book upon melancholy with this important precept: 'Be not solitary; be not idle.' Remember Cheyne's position and observe Burton's precept."

In conclusion I cannot do better than quote some of Cheyne's own words: "To bear and forbear is all that is absolutely necessary in this life to make a man tolerably easy, and his pain and suffering cannot have risen to any great height who will not submit to this."

A CASE OF AMAUROTIC FAMILY IDIOCY.

By Ernest Sachs.

(From the Neurological Clinic, The Johns Hopkins Hospital Dispensary.)

The case reported here is of interest as being the first example of this disease observed at the Johns Hopkins Hospital, and though it was impossible to obtain an autopsy, it is, nevertheless deemed worth while to put it on record as another example of a rather rare condition. I am indebted to Dr. Thomas both for the privilege of following the case as well as of reporting it.

D. K.—Nerv. Dis. No. 14634, age 14 months, was first seen at the neurological dispensary of the hospital on June 6, 1903. The diagnosis was at once apparent from the general condition and the typical retinal picture.

F. H.—Father and mother both healthy and well; not related to one another. They are Russian Jews. No history of syphilis in either parent. This is the third child. The oldest, 5 years, a boy, is healthy and has never shown any symptoms of a similar trouble. The second child when several years old died of diphtheria. There is no history of a similar disease in either the father's or mother's family.

P. H.—This patient was a full term child, the labor was normal and the child seemed perfectly healthy. No history of convulsions or any symptoms pointing to hereditary syphilis. When six weeks old the child had bronchitis; has had some cough at intervals ever since. When 1 year old had measles and from this time mother dates the illness. Child was breast fed, the feeding being supplemented with cow's milk of excellent quality. Child has never spoken or crawled. The bowels have always been constipated and are moved with considerable difficulty.

P. E.—Patient is a weak, sickly looking child. Its face is expressionless, but at times seems to smile. Cannot hold its head up, it falls back or forward. Pupils are equal and moderately dilated, and react to light. Child takes notice of objects and follows them about, but does not seem to see so well at the periphery. Child seems to hear. Starts violently at a sudden sound. Every now and then has a spasmodic jerk of its muscles. Some stiffness of arms on passive motion; no contractures. At a sudden sound legs and arms are stiffened.

Reflexes.—Deep reflexes much exaggerated in arms and legs. Jaw jerk is active, and associated with this is a contraction of the orbicularis. No ankle clonus but an active tendo Achillis reflex. Flexor response of all the toes on plantar stimulation. No local atrophy; no paralysis of any muscles. Sensation seems to be present everywhere. The prick of a pin is responded to at times by a jerking all over the body. The ophthalmoscopic examination revealed the characteristic picture of this disease. The patient was referred to the eye department where Dr. Randolph made the following note: "Around the fovea in both eyes there is a cherry red spot, surrounded by a gray area. The optic discs look a little pale."

From this time on the patient, although watched carefully and seen repeatedly, grew progressively weaker. In October

the following note was made: "Child is getting weaker; no longer can hold anything in its hands. Has been weaned.

Symptoms remain as previously described." About this time the child developed difficulty in deglutition and could not swallow its food. This symptom continued and became more marked. Vision seemed completely gone, and the patient no longer responded to a bright light or speech, but starts at a loud sound. The patient continued to get weaker. Rigidity of arms and legs became very much more marked. Slight contractures appeared in the legs. On several occasions the child had attacks of explosive laughter which seemed to come without any apparent outside stimulus.

The child grew continually weaker, lost weight and became very much emaciated, presenting a typical picture of marasmus, and died February 29, 1904.

Remarks.—This case is undoubtedly an example of the spastic form of amaurotic family idiocy. It shows all the cardinal symptoms of the condition as well as two features which have only been observed in a few instances by Falkenhein, namely, the explosive laughter and disturbances in deglutition.

The most recent views about this disease with a fairly complete bibliography may be found in the Journal of Nervous and Mental Disease, January, 1903.

SUMMARIES OR TITLES OF PAPERS BY MEMBERS OF THE HOSPITAL OR MEDICAL SCHOOL STAFF APPEARING ELSEWHERE THAN IN THE BULLETIN.

JOHN J. ABEL, M. D. The Function of the Suprarenal Glands and the Chemical Nature of their So-Called Active Principle.—*Contributions to Medical Research,* Dedicated to Victor C. Vaughan, Ann Arbor, 1903.

SAMUEL AMBERG, M. D. Sublingual Growth in Infants.—*American Journal of the Medical Sciences,* August, 1903.

CHARLES RUSSELL BARDEEN, M. D. Variations in the Internal Architecture of the M. Obliquus Abdominis Externus in Certain Mammals.—*Anatomischer Anzeiger,* June 24, 1903.

JOHN S. BILLINGS, JR., M. D. The Work Performed by the Diagnosis Laboratory of the Department of Health in Connection with Ehrlich's Diazo Reaction during 1902. —*New York Medical Journal,* April 18, 1903.

——— The Value of Confirmatory Cultures in Diphtheria. —*New York Medical Journal,* September 12, 1903.

——— The Administration of Antitoxine in Diphtheria by the Department of Health During 1902.—*New York and Philadelphia Medical Journal,* December 12, 1903.

E. BATES BLOCK, M. D. Parotitis Following Typhoid Fever. —*Atlanta Journal Record of Medicine,* February, 1903.

Male, age 34 years, developed parotitis of the left side on the 47th day of the disease, 16 days after his temperature reached normal. The involvement of the parotid gland was followed by a rise of temperature to 101.3° F. and ran an irregular course for five days. There was no evidence of suppuration.

The original paper mentions the various inflammatory lesions produced by the typhoid bacillus, and the occurrence of parotitis following other diseases of the abdominal, or pelvic, viscera, or generative organs.

——— The Relation of the Nervous System to Unilateral Sweating.—*Transactions of the Medical Association of Georgia,* 1903, page 291.

A Russian tailor, aged 47 years, was admitted to Dr. Thomas' Clinic in the Johns Hopkins Hospital Dispensary on the 23rd of April, 1901, complaining of excessive paroxysmal sweating on the right side of the head and body which had existed for twelve years and was most marked on the right half of the face, head and shoulder and the upper part of the chest, and limited sharply by the mid-line. The right ear and the left side of the face and body did not sweat during the paroxysms. The mouth was drawn a little upward at the right corner which extended further lateral than to the left, the right labio-nasal groove being much deeper and more distinct than the left. During the paroxysms, the right side of the face becomes redder than the left. The right fore-arm and hand sweat more than the left. After cleaning the face with neutral alcohol, the sweat was always found to be slightly acid and contained sodium chloride. Sensation was normal for all varieties. Many experiments were tried, to observe the effect on the sweating. Drinking hot water caused most profuse perspiration, the sweat pouring in streams down the right side of his face. The right side of the face became warmer and redder than the left during the sweating attacks, and the axillary temperature ranged from 0.1° F. to 0.5° F. higher in the right axilla than the left. In thirteen observations on the pupils, both during the sweating attacks, and between them, the right pupil was slightly smaller than the left ten times, while on three occasions both pupils appeared equal. The pupillary reactions were all retained. There was myopia of both eyes, greater in the right. After pilocarpine injections, the sweating began first, and was more pronounced, on the right side.

After a general discussion of the literature, a case of per-

ipheral nerve paralysis was reported, which seemed to indicate that a complete nerve paralysis was accompanied by anidrosis, while a partial paralysis was accompanied by hyperidrosis, while on a return of the nerves to normal function, the sweat secretion also became normal.

Statistics were collected from 107 cases, and the syndrome of myosis, redness, increased temperature, and unilateral sweating on the same side was present in such a large majority of cases that they must at least be regarded as the rule.

The temperature on the sweating side in thirty-two cases, was increased in twenty-seven, equal in four, decreased in one. (In the case reported above, the right axillary temperature was 0.2° F. lower than the left between the sweating attacks).

Redness was present in twenty-nine cases, and not present in three cases, out of thirty-two cases in which a note was made on this point.

Myosis has not proven such a constant concomitant. Thus in forty-seven cases, the pupils were larger on the sweating side in nine, smaller in twenty-three, equal in fifteen, but it is very probable that a slight difference in the size of the pupils in the last group was unnoticed in some cases. Moreover, many of these cases in which the pupils were equal or larger, were evidently not cases of sympathetic affection, so that the occurrence of myosis has really a greater relative frequency than appears in this table.

In regards to sex, there were fifty-seven males to twenty-five females affected with unilateral sweating.

Forty-four cases occurred on the right side, and thirty-three on the left.

In eighteen cases some affection of the parotid gland was noted. Further statistics may be seen in the original article.

JOSEPH C. BLOODGOOD, M. D. Rare Case of Appendicular Abscess Situated between the Layers of the Mesentery of the Small Intestine.—*American Journal of the Medical Sciences,* October, 1903.

——— Intestinal Obstruction Following Operation for Reducible Left Inguinal Hernia Due to a Loop of Small Intestine caught in Freitz's Fossa.—*Annals of Surgery,* December, 1903.

GEORGE BLUMER, M. D. A Note on the Embryonal Glandular Tumors of the Kidney.—*Albany Medical Annals,* August, 1903.

——— and H. C. GORDINIER, M. D. A Case of Chronic Lymphatic Leukaemia without Enlargement of the Lymph Nodes.—*Medical News,* October 31, 1903.

JOHN BRADFORD BRIGGS, M. D. A Note on the Association of a Rise in Systolic Blood Pressure, with the Onset of a Perforative Peritonitis in Typhoid Fever.—*Boston Medical and Surgical Journal,* September 24, 1903.

THOMAS R. BROWN, M. D. The Blood in Health and Disease with a Review of the Recent Important Work on this Subject.—*The International Clinics,* Vol. 4, 12th Series.

——— Enteroptosis, its Etiology, Symptomatology, Treatment, and Prognosis.—*American Medicine,* Vol. 6, August 15, 22, 29, 1903.

——— The Diuretic Value of Salt Solution Enemata, Especially After Renal Operations.—*Maryland Medical Journal,* August, 1903.

——— The Value of Leucocyte Counting in Differentiating Post-Operative Auto-Intoxication from Peritonitis.—*Maryland Medical Journal,* August, 1903.

——— The Gastric Contents in Gastroptosis.—*New York and Philadelphia Medical Journal,* September 26, 1903.

——— The Value of Albuminuria in Differentiating Pyelitis from Cystitis.—*New York and Philadelphia Medical Journal,* October 17, 1903.

——— Urinary Hyperacidity.—*New York and Philadelphia Medical Journal,* November 14, 1903.

C. H. BUNTING, M. D. The Effects of Lymphotoxins and Myelotoxins on the Leucocytes of the Blood and on the Blood-forming Organs.—*University of Pennsylvania Medical Bulletin,* July-August, 1903.

——— Primary Sarcoma of the Spleen with Metastases. Report of a Case.—*University of Pennsylvania Medical Bulletin,* July-August, 1903.

W. J. CALVERT, M. D. Plague Serum in Three Cases.—*Boston Medical and Surgical Journal,* January 8, 1903.

——— Transmissibility of Plague.—*American Medicine,* January 24, 1903.

——— Plague Bacilli in the Blood.—*Centralblatt f. Bakteriologie, Parasitenkunde u. Infectionskrankheiten,* 1 abt., XXXIII Bd., No. 4. 1903.

——— Comment on Plague Memorandum.—*American Medicine,* March 7, 1903.

——— Tropical Diseases: General Introduction.—*Buck's Reference Handbook of the Medical Sciences,* Vol. VII, 1903.

——— Record of Parasitic Infections in the Philippines.—*Boston Medical and Surgical Journal,* October 23, 1903.

C. N. B. CAMAC, M. D. A Preliminary Report of the Venous Hum in Relation to the State of the Blood.—*Medical News,* March 21, 1903.

Demonstrated from cases that the venous hum may be and frequently is present with normal blood.

——— Some Observations on Aneurism and Arteriosclerosis.—*The Mütter Lecture,* delivered December 1, 1903, at the College of Physicians, Philadelphia.

A historic review of the development of our knowledge of vascular diseases and pathological and historical consideration of the initial changes in the vessel wall in arteriosclerosis and aneurism.

JOHN G. CLARK, M. D. Address in Obstetrics, delivered before the Meeting of the Medical Society of the State of Pennsylvania, York, September 22, 1903. I. The Treatment of Cancer of the Uterus by Roentgen Rays. II. The Etiology of Eclampsia.—*University of Pennsylvania Medical Bulletin,* November, 1903.

——— Lessons from the Life of Pasteur.—*Northwest Medicine,* Vol. I, No. 6, 1903.

——— Histogenesis of Glandular Cysts of the Ovary.—*Transactions of the American Gynecological Society,* 1903.

HENRY W. COOK, M. D. The Accurate Estimation of Pulse Tension.—*The Old Dominion Journal of Medicine and Surgery,* October, 1903.—*Virginia Medical Semi-Monthly,* November 13, 1903.

THOMAS S. CULLEN, M. B. Uterine Myomata and their Treatment.—*Canada Lancet,* July, 1903.

——— Sarcomatous Transformation of Myomata.—*Journal of the American Medical Association,* October 24, 1903.

——— Adeno-Myome des Uterus. Berlin, 1903.

GEORGE W. DOBBIN, M. D. Management of Normal Labor.—*Buck's Reference Handbook of the Medical Sciences,* 1903.

ARTHUR W. ELTING, M. D. The Unusual Symptoms of the Weakened Foot, with Illustrative Cases.—*Albany Medical Annals,* April, 1903.

JOHN M. T. FINNEY, M. D., and OMAR B. PANCOAST, M. D. Enterostomy, with Report of Cases.—*American Medicine,* August 22, 1903.

The paper calls attention to certain additional indications for the performance of the operation of enterostomy:

1. To drain temporarily a distended intestine, thus allowing it to regain its normal tome.

2. To enable one to nourish a patient whose stomach and rectum are unable to retain or absorb a sufficient amount of nourishment.

After calling attention to several general considerations which had been noticed in the author's experience, seven cases of enterostomy were reported for various causes.

SIMON FLEXNER, M. D. A Note on Autolysis in Lobar and Unresolved Pneumonia.—*University of Pennsylvania Medical Bulletin,* July-August, 1903.

——— An Aspect of Modern Pathology.—*American Journal of the Medical Sciences,* August, 1903.

——— and HIDEYO NOGUCHI, M. D. On the Plurality of Cytolysins in Snake Venom.—*University of Pennsylvania Medical Bulletin,* July-August, 1903.

W. W. FORD, M. D. Classification and Distribution of the Intestinal Bacteria in Man.—*Studies from the Royal Victoria Hospital,* Vol. I, No. 5, May, 1903.

T. B. FUTCHER, M. B. The Occurrence of Gout in the United States.—*The Practitioner,* July, 1903, p. 6.

1. The apparent infrequency of gout in the United States is due in large part to failure to recognize the disease.

2. Out of 15,697 medical cases admitted to Dr. Osler's wards at the Johns Hopkins Hospital during a period of 14 years, there were 41 cases of gout, or 0.26 per cent of the total number of medical patients. For the same number of years at Saint Bartholomew's Hospital there were 124 cases out of a total of 33,356 medical admissions, or 0.37 per cent of the medical cases.

3. The ratio of admissions of gout to the two hospitals is respectively a little greater than as 2 is to 3; or, in other words, the admissions of gout to a general hospital are a little less than one-third more frequent in London than in Baltimore.

4. All of the 42 cases were males. There was only one colored patient in the series. The negro race appears to possess a relative immunity from the disease. The largest number of cases, 13, occurred in the fifth decade. Of special interest is the fact that 32 of the patients were native-born Americans.

5. The majority of the cases appear to have earned rather than inherited their gout. Alcohol and lead seemed to be the most potent aetiological factors.

6. Thirty-nine of the 42 cases had reached the chronic stage before they came under observation. In 19 of the cases tophi were present.

7. Among the most interesting complications may be mentioned four cases of gouty bursitis; one case of parotitis, one of pericarditis, one of retrocedent gout with symptoms simulating intestinal obstruction.

8. There was evidence of disease of the kidneys in the majority of cases. Albuminuria occurred in 32 and hyaline or granular casts in 26 instances.

9. Arterio-sclerosis of varying degree was present in 29 cases and a mitral systolic murmur in 8.

10. The difficulty of differentiating the disease from rheumatism was illustrated by the fact that four of the cases were repeatedly diagnosed as the latter on their early admissions to the hospital, the appearance of tophi later revealing the true nature of the disease

11. The series illustrates the great importance of examining the ears and the vicinity of the joints for the presence of tophi in all cases of multiple arthritis of doubtful origin.

——— Some Points on Metabolism in Gout: With Special Reference to the Relationship between the Uric-Acid and the Phosphoric-Acid Elimination in the Intervals and During Acute Attacks.—*The Practitioner,* August, 1903, p. 181.

The analyses in the cases reported above suggest very strongly a close parallel relationship between the uric-acid and phosphoric-acid excretion in gout. They further point in favor of the view that both are products of nuclein-disintegration. In the quiescent intervals both phosphoric acid and uric acid are markedly reduced below normal. Two or three days after the acute arthritic symptoms commence the phosphoric acid and uric acid gradually increase until they reach the average output, or even the upper limit for normal. As the acute manifestations subside both steadily fall and remain below the lower limit for normal until the onset of the next acute attack.

——— A Study of the Cases of Amoebic Dysentery Occurring at the Johns Hopkins Hospital.—*The Journal of the American Medical Association,* August 22, 1903, p. 480.

In nearly fourteen years 120 cases of amoebic infection have been admitted to the Johns Hopkins Hospital. Of these, 119 were cases of amoebic dysentery and amoebic abscess of the liver, the remaining case being one of amoebic abscess of the floor of the mouth. Of the 120 cases 118 were admitted to the medical wards. During this time there were 15,817 medical admissions, the amoebic dysentery cases constituting 0.74 per cent of the cases. Of the 119 cases of dysentery, 82 were apparently contracted in Baltimore and 13 in the State of Maryland outside Baltimore, or a total of 95 cases within the borders of Maryland. The largest number of cases occurred in the third decade. The youngest patient was a child two years and eight months old, and the oldest a man of 71. A point of special interest is the comparatively large number of cases in children under 10 years. Eleven cases, or 9.4 per cent, occurred in the first decade, 6 of these belonging in the first hemi-decade. There were 108 males and 11 females. The series comprised 107 whites and 12 blacks, or a proportion of 9 to 1. The total ratio of whites to blacks in the hospital is about 7 to 1. A secondary anaemia of moderate grade occurs. Occasionally there is a polycythemia. The average leucocyte count in the uncomplicated dysentery cases was 10,600. In the hepatic abscess cases it was 18,350. Hepatic

abscess occurred in 27, or 22.6 per cent, of the cases. Nine of these ruptured into the right lung and 2 into the right pleura. Three opened into the inferior vena cava. In 10 cases of the 18 abscess cases that came to autopsy there was a single large abscess in the upper part of the right lobe. In 8 cases there were multiple abscesses. Perforation of the colon with peritonitis occurred in 3 cases, and severe intestinal hemorrhage in 3 cases. Five cases were complicated by malaria; 1 by typhoid; 1 by pulmonary tuberculosis; and 1 by a strongyloides intestinalis infection. The agglutinative blood reaction with Bacillus dysenteriae was negative in all cases tried. A marked feature of the disease is the great tendency to relapse. The mortality was high; 28, or 23.5 per cent, terminated fatally. Hepatic abscess is a serious complication, 19 of the 27 cases terminating fatally. Five were cured out of 17 operated on. Two of the hepato-pulmonary abscess cases were discharged very much improved. One abscess case did not remain to be treated. Quinine irrigations still seem to give the best results in the treatment of the dysentery.

T. Caspar Gilchrist, M. D., and W. Royal Stokes, M. D. The Presence of Peculiar Calcified Bodies in Lupus-like Tissue.—*Journal of Cutaneous Diseases,* October, 1903.

Henry Harris, M. D. A Case of Progressive Muscular Atrophy of Spinal Origin.—*California State Journal of Medicine,* January, 1903.

Importance of cold and fatigue shown ætiologically in a case resulting two weeks after excessive cold and fatigue while the patient was traveling in Alaska.

William H. Howell, Ph. D., M. D. Obervations upon the Cause of Shock, and the Effect upon it of Injections of Solutions of Sodium Carbonate.—*Contributions to Medical Research,* Dedicated to Victor C. Vaughan, Ann Arbor, 1903.

Guy L. Hunner, M. D. An Interesting Complication in the Diagnosis of Gallstone.—*American Medicine,* May 2, 1903.

Two cases are reported, in one of which was made a possible, and in the other a positive diagnosis of gallstone. Operation in each case demonstrated that the symptoms were due to the omentum being adherent to a former operation wound. The symptoms were probably caused by traction on the parietal peritoneum at the base of the mesocolon.

——— One Hundred Consecutive Cases of Myoma of the Uterus.—*American Medicine,* July 11, 1903.

The writer reports one hundred consecutive cases of myoma of the uterus occurring in the gynecological service at the Johns Hopkins Hospital.

Eighty per cent of these patients were between 30 and 49 years of age. Eighty per cent were married and 32 per cent of these had never been pregnant. Of the 54 women who had been pregnant, 11 or about 20 per cent had borne but one child, and 6 had never carried a child to viable age. One patient had miscarried six times, the fetus never going beyond the fifty month. Of the 54 women who had been pregnant, 20 had miscarried at some period in life.

At times the diagnosis between fibroid tumor and pregnancy can not be made even when the patient is fully anesthetized.

Of the chief symptoms noted, 35 patients complained of an abdominal tumor. Pain, either in the abdomen or pelvis, or in the form of dysmenorrhoea, was complained of by 53 patients. Increased menstrual flow was noted in 41 cases and copious hemorrhages at or between the menstrual periods in 15 cases, making 56 per cent in which myoma was associated with unusual loss of blood.

Gastric symptoms were prominent in 6 cases. Sixteen patients complained of bowel symptoms, and 28 patients of bladder symptoms.

Carcinoma of the fundus occurred in 3 cases, of the cervix in 2 cases. Sarcoma was present in 2 cases. Adenomyoma existed in 2 cases.

The following operations were done for the 100 cases: Myomectomy, 19; panhysteromyomectomy, 14; supravaginal hysterosalpingooophoromyomectomy, 40; supravaginal hysteromyomectomy, leaving one or both ovaries, 16; vaginal myomectomy, 5; vaginal hysteromyomectomy, 6.

Six patients died. In five of them the tumor was complicated by serious pelvic inflammatory disease. One died on the sixth day from septicemia, one on the third day from general peritonitis, one on the fourth day from thrombosis of the left common iliac vein with embolus carried to the pulmonary artery, one suffered with an infected tumor and died in 10 hours from shock, which was profound even before operation. Two died in 20 hours and 4 hours, respectively, from shock due to loss of blood at operation.

——— Tuberculosis of the Urinary System in Women. Report of Thirty-Five Cases.—*Charlotte Medical Journal,* November, 1903.

Henry M. Hurd, M. D. The Duty and Responsibility of the University in Medical Education.—*Science,* July 17, 1903.—*Yale Medical Journal,* July, 1903.

Henry Barton Jacobs, M. D. Maryland's Need of a Mountain Sanatorium for Indigent Consumptives.—*Maryland Medical Journal,* October, 1903.

Howard A. Kelly, M. D. The Early History of Appendicitis in Great Britain. Glasgow Medical Journal, August, 1903.

——— On the Labia Urethrae and Skene's Glands.—*American Medicine,* September 12 and 19, 1903.

——— The Selection of Methods in Abdominal Hysterectomy.—*Journal of Obstetrics and Gynæcology of the British Empire,* 1903, Vol. IV.

J. H. M. Knox Jr., M. D. A Contribution to the Study of the Summer Diarrhœas of Infancy.—*Journal of the American Medical Association,* July 18, 1903.

W. Harmon Lewis, M. D. Wandering Pigmented Cells Arising from the Epithelium of the Optic Cup, with Observations on the Origin of the M. Sphincter Pupillæ in the Chick.—*American Journal of Anatomy,* Vol. II, No. 3.

Irving P. Lyon, M. D. Arterio-sclerosis and the Kidney.—*Transactions of the Medical Society of the State of New York,* 1903, p. 96, and reprinted in *Albany Medical Annals,* March, 1903.

——— Blood Examination in General Practice.—*Transactions of the Medical Society of the State of New York,* 1903, p. 131, and reprinted in *Buffalo Medical Journal,* June, 1903.

——— A Statistical Study of a Rural Cancer District in the State of New York—Brookfield. Fourth Annual Re-

port of the Work of the Cancer Laboratory of the New York State Board of Health, for the year 1902-3, Albany, 1903, pp. 97-119.

——— A Cancer District in the Towns of Plainfield and Edmeston, New York. Fourth Annual Report of the Work of the Cancer Laboratory of the New York State Board of Health, for the year 1902-3, Albany, 1903, pp. 120-123.

——— A Review of Echinococcus Disease in North America.—*American Journal of the Medical Sciences,* January, 1902.

This paper analyzes 241 American cases, citing the original report of each case, where published, and adding many unpublished cases. The cases are considered under the following headings: Age; Sex; Nationality; Geographical Distribution, by States and Provinces; Anatomical Location, by Organs Involved; Diagnosis; Is the Disease on the Increase in America? ; The Distribution of the Disease in Animals in America; The Occurrence in Dogs of the Adult Tapeworm, Taenia Echinococcus; Prophylaxis; Commercial Considerations.

W. G. MACCALLUM, M. D. On the Production of Specific Cytolytic Sera for Thyroid and Parathyroid, with Observations on the Physiology and Pathology of the Parathyroid Gland, Especially in its Relation to Exophthalmic Goitre.—*Medical News,* October 31, 1903.

THOMAS MCCRAE, M. D. Acute Articular Rheumatism. A Report of the Cases in the Johns Hopkins Hospital, 1902-1903.—*American Medicine,* August 8, 1903.

J. D. MADISON, M. D. A Case of Brain Tumor in a Woman Seventy-Eight Years of Age.—*American Journal of Insanity,* January, 1903.

F. P. MALL, M. D. On the Circulation through the Pulp of the Dog's Spleen.—*American Journal of Anatomy,* Vol. II, No. 3.

——— On the Transitory or Artificial Fissures of the Human Cerebrum.—*American Journal of Anatomy,* Vol. II, No. 3.

——— Spleen.—*Buck's Reference Handbook of the Medical Sciences,* 1903.

——— Second Contribution to the Study of the Pathology of Early Human Embryos.—*Contributions to Medical Research,* Dedicated to Victor C. Vaughan, Ann Arbor, 1903.

HARRY T. MARSHALL, M. D. Osteoma.—*Buck's Reference Handbook of the Medical Sciences,* 1903.

——— Side Chain Theory of Paul Ehrlich.—*Buck's Reference Handbook of the Medical Sciences,* 1903.

G. BROWN MILLER, M. D. Congenital Dilatation of the Gall Bladder and Bile Ducts.—*The American Journal of Obstetrics,* Vol. XLVIII, No. 2, 1903.

The patient, a girl 2½ years old, was born with a very large abdomen, which measured a few days after birth 24½ inches in circumference. She was well developed, learned to walk about the usual age, and except some trouble with digestion and inconvenience due tc the size of the abdomen, was apparently in good general health. Her stools varied from clay color to a light brown. The size of the abdomen was due to a tumor, which proved to be an enormous dilatation of the gall bladder and bile ducts, and occupied most of the abdominal cavity. Three litres of thin bile containing mucus were evacuated after stitching the tumor to the abdominal wall. No gall stones could be found. The bile continued to flow through the fistula and the stools showed an absence of bile for three months, when after a great outflow of thick bile-stained mucus the fistula closed and the stools assumed a normal color. She is now quite well, 1½ years after the operation.

The liver was represented by a very small left lobe and a mass of liver substance the area of the palm of the hand and about 1-2 cm. thick, lying intimately adherent to the cyst and separated from the left lobe by an interval of 5 cms. The ligaments of the liver were attached to the cyst.

G. H. F. NUTTALL, M. D. In Memoriam: Walter Reed.—*Journal of Hygiene,* Vol. 3, pp. 292-296.

——— In Memoriam: Edmond Nocard.—*Journal of Hygiene,* Vol. 3, pp. 517-522.

——— and A. E. SHIPLEY, M. A. Studies in Relation to Malaria. II. (Concluded). The Structure and Biology of Anopheles.—*Journal of Hygiene,* Vol. 3, pp. 166-215.

E. L. OPIE, M. D. Disease of the Pancreas; Its Cause and Nature.—*J. B. Lippincott Company,* Philadelphia and London, 1903.

——— Protozoa-like Bodies of Carcinoma, Smallpox and Leukæmia.—*Twentieth Century Practice of Medicine,* Vol. XXI, p. 553.

——— Plasmodium Malariae.—*Buck's Reference Handbook of the Medical Sciences,* 1903.

——— Symptoms and Treatment of Pancreatic Disease.—*International Clinics,* 1903.

WILLIAM OSLER, M. D. Chronic Cyanosis, with Polycythæmia and Enlarged Spleen: A New Clinical Entity.—*American Journal of the Medical Sciences,* August, 1903.

——— On the So-Called Stokes-Adams Disease (Slow Pulse with Syncopal Attacks, etc.).—*The Lancet,* August 22, 1903.

——— The Home in Its Relation to the Tuberculosis Problem.—*Medical News,* December 12, 1903.

——— Typhoid Fever and Tuberculosis.—*American Medicine,* December 26, 1903.

MARY S. PACKARD, M. D. An Encapsulated Diplococcus in Mastoiditis.—*Journal of Medical Research,* March, 1903.

OTTO G. RAMSAY, M. D. A Discussion of the Etiology and Modern Treatment of Eclampsia.—*Yale Medical Journal,* September, 1903.

ROBERT L. RANDOLPH, M. D. The Bacteria Concerned in the Production of Eye Inflammations.—*Journal of the American Medical Association,* October 3, 1903.

HUNTER ROBB, M. D. The Mortality following Operations for Pus in the Pelvis.—*Journal of the American Medical Association,* January, 1903.

——— The Vaginal Incision in Sepsis following Abortion.—*American Gynecology*, June, 1903.

——— Ovariotomy.—*Buck's Reference Handbook of the Medical Sciences*, June, 1903.

BENJAMIN R. SCHENCK, M. D. Results in a Series of Forty-eight Kidney Fixations.—*Detroit Medical Journal*, December, 1903.

——— Some Essential Points in the Use of the Kelly Female Cystoscope.—*Journal of the Michigan State Medical Society*, December, 1903.

——— An Eighty-eight Pound Ovarian Cyst Successfully Removed from a Patient Seventy-seven Years of Age.—*Journal of the American Medical Association*, December 19, 1903.

CHARLES E. SIMON, M. D. A Case of Myelogenous Leukæmia with Severe Unusual Features (absence of eosinophilic leucocytes).—*American Journal of the Medical Sciences*, Vol. CXXV, June, 1903, p. 984.

——— On the Occurrence of Ehrlich's Dimethylamidobenzaldehyde Reaction in the Urine.—*American Journal of the Medical Sciences*, Vol. CXXVI, September, 1903, p. 471.

FRANK R. SMITH, M. D. Extracts from the Writings of Wilhelm Griesinger, a Prophet of the Newer Psychiatry.—*American Journal of Insanity*, July and October, 1903.

WALTER R. STEINER, M. D. Report on the Progress of Medicine, 1902.—*Transactions of the Connecticut Medical Society*, 1903, pp. 113-125.

WILLIAM S. THAYER, M. D. On Arteritis and Arterial Thrombosis in Typhoid Fever.—*New York State Journal of Medicine*, January, 1903, III, 21-28.

——— Preliminary Report of the Tuberculosis Commission of Maryland, December 14, 1903.

HENRY M. THOMAS, M. D. The Anatomical Basis of the Argyll-Robertson Pupil.—*American Journal of the Medical Sciences*, December, 1903.

J. H. J. UPHAM, M. D. Some of the Unusual Complications of Chronic Nephritis.—*Columbus Medical Journal*, 1903.

——— Water-borne Diseases.—*Columbus Medical Journal*, 1903.

LOUIS W. WARFIELD, M. D. Acute Ulcerative Endocarditis Caused by Meningococcus (Weichselbaum).—*University of Pennsylvania Medical Bulletin*, July-August, 1903.

——— A Mild Case of Acute Dysentery Yielding *Bacillus dysenteriae* (Shiga) in Large Numbers.—*Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital*, No. 1, October, 1903.

——— A Plea for the Microscopic Examination of the Blood in the Continued and Remittent Fevers Common to our Southern States.—*Atlanta Journal-Record of Medicine*, November, 1903.

——— Some Practical Points taught by the Discovery of *B. dysenteriae* in the Stools of Infants Suffering from Summer Diarrhœa.—*Medical Record*, Vol. 64, November 7, 1903.

——— The Report of a Series of Blood Cultures in Typhoid Fever.

ANDREW H. WHITRIDGE, M. D. The Significance of Intermittent Albuminuria in Life Insurance Work, with a Report of a Case.—*Medical Examiner and Practitioner*, November, 1903.

J. WHITRIDGE WILLIAMS, M. D. Obstetrics. A Text-Book for the Use of Students and Practitioners, 1903.—*D. Appleton & Co.*, New York, pp. 845.

——— Indications for and the Most Approved Methods of bringing about Premature Labor and Accouchement Forcé.—*American Gynecology*, Vol. III, 1903, pp. 13-31.

——— A Sketch of the History of Obstetrics in the United States up to 1860.—*American Gynecology*, 1903, pp. 266-294, 340-366. Also *Siebold-Dohrn's Geschichte der Geburtshülfe*, Vol. III, Tübingen, 1903.

J. L. YATES, M. D. Notes on the Experimental Production of Specific Cytolysins for the Adrenal, Thyroid and Parathyroid Glands of Dogs.—*University of Pennsylvania Medical Bulletins*, July-August, 1903.

——— Dissecting Aneurysm of the Aorta, with a Report of a Case.—*Wisconsin Medical Journal*, December, 1903.

HUGH H. YOUNG, M. D. Conservative Perineal Prostatectomy. A Presentation of New Instruments and Technic.—*Journal of the American Medical Association*, October 24, 1903.

NOTES ON NEW BOOKS.

Human Placentation; an Account of the Changes in the Uterine Mucosa and in the Attached Fetal Structures during Pregnancy. By J. CLARENCE WEBSTER, B. A., M. D. (Edin.), F. R. C. P. E., F. R. S. E. With 233 illustrations. (*Chicago: W. T. Keener and Co., 1901.*)

The author of this book deserves credit for the breadth of view with which he approaches his subject. It is, he says, his conviction that a satisfactory knowledge concerning the development of the human placenta can only be obtained by carrying on a careful phylogenitic study in connection with the direct investigation of the human uterus. In pursuance of this idea, he has not only examined the pregnant uterus in all its different stages of development, but has made a careful study of the same periods in a number of animals, e. g., the rat, pig, sheep and cow. He has, moreover, examined a number of complete abortions in the early weeks, besides investigating the normal mucosa of the non-pregnant uterus, without which he does not think the changes occurring in pregnancy can be rightly understood. These elaborate and painstaking researches cover a period of eleven years. Their results are clearly and concisely presented, and their value is greatly enhanced by the number of excellent illustrations, which were prepared largely by the author himself, and represent much time and pains. It is, perhaps, a matter for regret that they should be separate from the text, since this arrangement necessitates a constant shifting of attention; but, on the other hand, it has the advantage of enabling the reader to follow the plates with their accompanying descriptions consecutively, and

thus gain a better general impression of the process of evolution they depict than would otherwise be possible.

The American Text-book of Obstetrics. Edited by RICHARD C. NORRIS, M. D., and ROBERT L. DICKENSON, M. D., Art Editor. Second edition, revised; with nearly 900 illustrations. (*Philadelphia and London: W. B. Saunders and Company, 1902.*)

The object of this volume, as stated in the preface, is, *par excellence*, that "of making clear those departments of obstetrics which are at once so important and usually so obscure to the medical student." As this is its avowed purpose, it is perhaps unreasonable to object that too much time and space are devoted to the pathologic side of labor and too little to the physiologic or normal side. Nevertheless, it is impossible to forbear a protest as to the unnecessary prominence given to the unusual and abnormal aspects of labor. Out of 1054 pages (exclusive of indices) contained in the two volumes only 173 are devoted to normal labor, including its mechanism, and it is impossible to avoid the reflection that a student educated along these lines might come to the first labor case, for which he is individually and primarily responsible, fully prepared to do a podalic version or a Caesarean section, but not altogether equal to the demands of a normal parturition.

Apart from this defect, however, the book is prepared in the best possible manner. The choice of writers, originally carefully and prudently made, has been correspondingly carried out in the changes which death has made necessary in this, the second edition, and their respective subjects have received thorough treatment. Some of the chapters, those, for instance, on dystocia and the pathology of pregnancy, are written in a style unusually animated and interesting, while the constant introduction of illustrative cases, briefly cited, adds greatly to their readable qualities.

Both volumes are liberally illustrated, and the illustrations have been executed on a carefully considered scheme which gives them additional value. The invariable selection, for instance, of the left half for sagittal sections, in preference to the practice hitherto employed, of using right or left indifferently, is a most desirable change. A little too much realism may possibly characterize some of them, but on the whole they are suitable and valuable, especially those in the section on dystocia arising from abnormalities of the fetus.

The section on the new-born infant is unusually full and complete, as well as that on obstetric surgery.

The manner in which the names of contributors are presented is not, in our opinion, sufficiently emphatic. They are appended, in parenthesis, to the titles of their respective sections in the table of contents, and the fact that the type used for the author's name is smaller than that used for the title of the subject must cause it (we speak from experience) to be sometimes overlooked.

In spite of such defects, however, the work is well calculated to fill a valuable place in the literature of its subject, namely, that of presenting the views of a number of individuals, each especially well informed on the subject of which he treats, in such a manner as to form an harmonious whole.

Modern Obstetrics; General and Operative. By W. A. NEWMAN DORLAND, A. M., M. D. Second edition, revised and enlarged; with 201 illustrations. (*Philadelphia and London: W. B. Saunders and Co., 1901.*)

This volume is characterized by an unusual and very pleasing display of common sense on the part of the writer. The section on normal labor, he fitly denominates "Physiologic Obstetrics," and lays strong emphasis on the fact that although in our present advanced stage of civilization parturition is too often accompanied by difficulties and dangers wholly unknown under simpler conditions of life, it should never be forgotten that labor is essentially a purely physiologic process.

The pathological side of the book, however, in no way suffers from the prominence given to the physiological. The utmost care has evidently been taken to collect the fullest possible information in regard to every abnormal condition and the essentials have been discreetly selected and concisely expressed. The chapter on puerperal sepsis is especially valuable, treating as it does of a condition only recently understood, and one in regard to which our knowledge is still undergoing evolution. Dr. Dorland's division of this subject into two classes—general and local—is sensible and useful, and his treatment of the different indirect manifestations accompanying each condition is well calculated to give them the prominence they deserve.

In considering the question of diagnosis between puerperal sepsis and other pathologic conditions, Dr. Dorland remarks acutely that "the general physician is so averse to admitting, even to himself, that he has a case of sepsis on his hands that he is very prone to argue himself into believing that his patient is suffering from an attack of some other intercurrent affection, as an enteric fever or an influenza." In our large cities, obstetrics is becoming yearly more and more the work of a specialist or semi-specialist, but elsewhere it is, and must remain, almost entirely in the hands of the general practitioner, and therefore the truth contained in the above remark, and the hints accompanying it for the guidance of the physician at large in this particular, are especially worthy of attention. All the most modern forms of treatment of puerperal sepsis are given very fully, and the reasons for or against each are stated with fairness.

The section on diseases of the genito-urinary tract is also very complete, especially as regards puerperal eclampsia, which receives its due meed of consideration. It is perhaps to be regretted that the text is quite so much burdened with statistics and percentages, but this is a trivial defect.

The number of illustrations is not large, but it is sufficient, and it is, on the whole, rather pleasurable than otherwise to find ourselves reading a text-book in which the process of thought is allowed opportunity for exercise without pictorial distraction, in contrast to the numbers of such volumes in which the succession of illustrations is so constant and so rapid that reflection and deduction are rarely allowed fair play.

No book is without faults, and one who looks for them here will, of course, be able to find them, but the work is a valuable one and the literature of the subject is the better for it.

Atlas and Epitome of Labor and Operative Obstetrics. By. DR. OSKAR SCHAEFFER, Privat Docent in Obstetrics and Gynecology in the University of Heidelburg. Authorized translation from the fifth revised German edition; with 14 lithographic plates in colors and 139 other illustrations. (*Philadelphia: W. B. Saunders and Co., 1901.*)

This book, as its name indicates, is essentially a volume of illustrations, the text being really but complemental in function. To express the amount of information requisite for such a purpose in so condensed a form is not an easy matter; the writer, however, is evidently thoroughly familiar with the practical details of his subject and possesses a grasp of its fundamental principles sufficiently firm to permit of his attaining his object in a satisfactory manner. To say that condensation is carried a little too far may be treason to the purpose of the book, nevertheless, a passing doubt arises as to whether the information imparted would not in the end be better assimilated if it were somewhat less condensed; or rather, to put the matter on a broader basis, whether other and fuller methods of instruction are not really those best adapted to the real end in view, namely, the acquisition of knowledge. This is not the time and place, however, to engage in the discussion of so fundamental a question, and the

number of editions through which the book has passed seem to afford sufficient guarantee that it meets with popular requirements. The general arrangement of the book is excellent, and its main divisions are well calculated to give the student a clear understanding of the broad outlines of the subject. The illustrations which form so integral a part of the work are well chosen for their purpose, and arranged to advantage. A word of favorable comment is due to the translator, whose work is not only accurate and clear, but, so far as the extreme condensation of style permits, is smooth and easy.

A Text-Book of Pathology and Pathological Anatomy. By Dr. Hans Schmaus; translated from the sixth German edition by A. E. Thayer, M. D.; edited with additions by James Ewing, M. D. 602 pages, with 351 engravings, including 35 colored plates. (*Philadelphia and New York: Lea Bros. & Co., 1902.*)

As we already have several satisfactory elementary text-books of pathology written in the English language, it is difficult to appreciate the necessity of a translation of Schmaus's text-book. But granting the desirability of a translation, it is unfortunate that more care was not given to the English in which it is clothed. One is impressed throughout the book by the fact that he is reading a translation. There is a close adherence to German order and a studied avoidance of the English idiom, which seems often to obscure the meanings, and would leave a beginner in pathology quite in the dark.

The general scope of the book is well stated by the editor in the preface, in the following words: "The author has not attempted to compete with the more discursive works of his countrymen, but has endeavored to write a shorter, more compact but equally comprehensive book, embodying all the important principles and facts that should be brought before students of pathology. There is a notable absence in these pages of the argumentative style, the quotation of authorities and the pursuit of personal opinion that are prominent features in the larger works and likewise absent is the full discussion of many topics that properly belong to a work of reference."

As a work of that nature, the book is to be commended. It is short and compact, so much so that the chapters at times seem but a series of definitions. It is comprehensive, including sections on general pathological processes, on parasites and on special pathology. There is almost an entire absence of the quotation of authorities for statements, and yet in spite of lack of "pursuit of personal opinion" one finds positive statements on subjects not generally accepted as entirely settled. The illustrations are, as a rule, good, though some of the colored plates, those which are printed in but a single color, would seem to be a useless expense, for though bright colors may be pleasing to the eye and also an important factor in making a book sell, the true value of a colored plate is supposed to lie in the detail that may be brought out by contrasting colors. But all in all it may be said that, barring the English, the author and editor have well fulfilled their intention. It is toward their "intention," or the condensed, comprehensive, elementary text-book in the abstract, that further criticism is directed. It does not seem to the reviewer that pathology in all its phases is a subject that can be treated in a highly satisfactory manner in a book of 600 pages of large type well leaded, and with a goodly proportion of space taken up by illustrations. Subjects must necessarily be treated in a sketchy, inexact, unscientific manner, without evidence to warrant conclusions drawn, or discussion of mooted questions, a condition which must fail to meet the demands of the student of pathology, who is, as a rule, an individual of a more, rather than less, mature mind, which has outgrown the habit of swallowing unquestioned what is placed before it. Nor does it seem just to the student to give him but one side of a question; for example, in speaking of cirrhosis of the liver, to tell him only, that "the essential element is the formation of granulation tissue between the lobes and its conversion into contracting cicatricial tissue with consequent atrophy of the hepatic cells" when "the other half-Rome" believes the hepatic atrophy primary. Even if the student were not able to decide for himself between the two views, statement of both would leave him with an open mind. To fall from the abstract to another concrete example; how firm a basis for the understanding of the etiology of dysentery is given the student, when to the author's statement that "In tropical cases the presence of amœbæ is characteristic and it is questionable whether our dysentery of hot weather is identical with the tropical type," is appended the editor's parenthetical note, "Both are probably referable to a specific bacillus—Bac. of Shiga."? If author and editor are in doubt, is not the reader entitled to a plain statement of pathological findings lest he be in worse darkness than simple ignorance? Briefly the ideal text-book seems, to the reviewer, one in which facts and their intepretation are clearly separated—and labelled—in which authority for statements is given, and in which important questions shall be discussed and the opinion of the author given in a critical review of existing opinions.

Clinical Pathology of the Blood. By James Ewing, A. M., M. D., Professor of Pathology, Cornell University Medical College, New York City. Illustrated with 43 engravings, and 18 colored plates drawn by the author. Second edition, revised and enlarged. (*New York and Philadelphia: Lea Brothers & Co., 1903.*)

In discussing this book, it should be borne in mind that its subject is "clinical pathology." It is the work of a pathologist, not of a clinician, and all the matter contained therein which concerns the clinical side of the question is quoted from literature. But the pathology of blood diseases is, perhaps, more than that of any other one branch of medicine, a subject of speculation and theory, with scarcely a single chapter (even the origin of red blood cells) resting on a basis of generally accepted ideas. Hence we may expect each edition to differ markedly from the preceding. This book is of very great assistance to those who are following current literature. It is, in fact, chiefly an epitome of literature, most of which deals with parts of the subject in which the author claims no authority or experience; hence his conclusions, based not on his own work but on the study of literature, are often inconclusive, the words "possibly" and "probably" being often repeated. We regard it unfortunate that a set of new plates was not prepared for this edition. The representations of leucocytes and malarial parasites are surely inadequate. Had some of the English writers seen these plates earlier, they would never have wasted their term "chromocytes" on red blood cells.

The author's English is not above reproach. No one can dispute his right to coin a new word if he wishes to do so, but he should be careful not to take too many liberties with old terms. The word "englobe" (page 176 et alt.) is a case in point. The use of "efiagellation (page 431), "spore" and "sporulation" (page 435 et alt.) applied to the malarial parasite, and "endothelia" (page 178), referring to cells, is, we think, open to criticism, although it may be a matter of taste. But surely the term "*crioscopy*" (κριος ram instead of κρυός cold) will please college fraternity men more than teachers, and the description of the same will be appreciated by the physical chemist who does not consider the "laws" governing cryoscopy as absolutely "invariable," nor "elements" a proper term for the substances in solution, and Donné's name is repeatedly misspelled.

In the chapter on blood plates (which, by the way, deserves mention in the index), page 186, the very important method of Deetjen deserves more mention, and, even though his opinions

are not accepted, the very positive opinions expressed must offend some of the best authorities on the subject.

The change mentioned on page 239 in the bulk of blood in leukæmia may occur in some cases, but the reverse also occurs.

The chapter on malaria is not at all satisfactory. We wonder if it has the same effect on others living in regions where malaria is common and who have plenty of opportunity to study fresh blood specimens in preference to using "improvised" (page 435) polychrome methylene blue; yet if the author can really get the details he pictures in the organism he is to be congratulated; it is the plates which to us seem "improvised." Considering the subject of the book, here is just the place one would expect to find the mosquito side of the subject well discussed, yet it is much neglected.

For a discussion of recent theories on the many problems of blood, this book is interesting, but beyond this little can be said in its praise.

Functional Diagnosis of Kidney Disease, with Especial Reference to Renal Surgery. By DR. LEOPOLD CASPER and DR. PAUL FRIEDERICH RICHTER. (*Philadelphia: P. Blakiston's Son & Co., 1903.*)

This little book appeared at a very opportune time, for cryoscopy was fast becoming the popular fad, and these two observers are particularly able to estimate its value. All the ordinary methods of determining the functioning power of each kidney, the vital problem for the surgeon, are discussed. The authors conclude that the only method of value is to examine the urine secreted simultaneously by each kidney, and to do this catheterization of at least one ureter is necessary. These urines are examined as regards both the molecular concentration, determined by the freezing method, and the excretion of sugar after the injection of phloridzen. The cases cited are very instructive.

The Practical Medicine Series of Year Books; under the General Editorial Charge of GUSTAVUS P. HEAD, M. D. Vol. VI. General Medicine. Edited by FRANK BILLINGS, M. D., and J. H. SALISBURY, M. D. (*Chicago: The Year Book Publishers, 40 Dearborn Street, May, 1903.*)

This is a good, clear, satisfactory résumé of the literature chiefly on diseases of the digestive organs, published during the year 1902. The many reviews are sufficiently long and are well digested.

A Guide to the Practical Examination of Urine. For the Use of Physicians and Students. By JAMES TYSON, M. D., Professor of Medicine, University of Pennsylvania. Tenth edition, revised and corrected. (*Philadelphia: P. Blakiston's Son & Co., 1902.*)

This excellent work has now reached its tenth edition. It is small, compact and contains just what and only what a physician needs to guide him in ordinary urine analysis. That, however, it is a good book for students we are not quite so sure. At least once in his education a student should read and practice a good deal of urine analysis which may not now be practical, but a knowledge of which is necessary if he would understand much of current work, which we hope may be practical in the near future.

Clinical Examination of the Urine and Urinary Diagnosis. A Clinical Guide for the Use of Practitioners and Students of Medicine and Surgery. By J. BERGEN OGDEN, M. D., Assistant in Clinical Pathology, Boston City Hospital. Illustrated. Second edition, thoroughly revised. (*Philadelphia, New York, London: W. B. Saunders & Co., 1903.*)

This is a splendid text-book, and much to be recommended. The chapters on qualitative examination are especially good; as regards the quantitative work, we very much doubt if it fulfills the author's hope that the student and practitioner who have not had special training in urinary analysis may by its use obtain accurate results. Methods of quantitative analysis cannot be thus condensed in half a page, and a student without previous training would be forced to use a book like Neubauer and Vogel, which, although written for those with previous training, discusses minutely each step of a process which this author merely states. For instance, we can imagine the perplexity of one who tries for the first time to determine total nitrogen. (The indexing of this chapter is peculiar.) On the other hand the hypobromite methods of urea determination are carefully described although we fear their value is doubtful, and the Schöndorff method, in our opinion, the best, although the hardest, is omitted.

It may seem a small point, but experience has taught us its value, and that is to avoid the use of the term "polariscope" for the instrument used in the quantitative estimation of sugar (page 162). As a physical instrument the polariscope has a scale which reads degrees, and tubes of 10 cm. length or some multiple of this, and such an instrument is seldom used in the clinic. That the instrument may read per cent of glucose, either the scale or the length of tube is modified, hence the term "saccharometer" is safer. Of course, if the observer has had no experience with the polariscope of the physical laboratory this point will not trouble him, but if his preliminary education has been thorough the instrument of the clinical laboratory will bother him, for he will try to use the specific rotation of glucose as the coefficient of the reading.

The chapter on β oxybutyric acid is, we think, very insufficient. This body is of considerable clinical interest and approximate quantitative determinations are within reach of one with a polariscope without undertaking the terrible procedure the author describes, which is the only one for isolation. The difference, rotation of a urine before and after fermentation, and, better still, the difference between the amount of sugar calculated with the polariscope and careful titration with Fehling's solutions will, due allowance being made for other optically active bodies, give an idea of the amount of the acid present.

The chapter on urinary sediments is excellent. We, however, also have had "exceptional opportunities for the study of cells from the ureter, but confess our inability to recognize from an epithelial cell its source in the urinary tract (see page 246).

The part on Diagnosis almost takes one's breath away. It occupies over one hundred pages. The classification of forms of nephritis may be pathological, but clinically it is too fine, and the aid the urine gives us in differentiating them could have been put in ten or fewer pages. Recognizing, however, that it is not safe to criticise an excess of the knowledge of another over our own, we confess with humility that we have not yet attained unto the skill in the urinary diagnosis which the author of this chapter must possess.

While we believe that in the chapters on chemistry the author has condensed methods to such an extent that it is difficult to follow their description, and while we think that the chapters on diagnosis are much too minute, we believe the book to be the best in English, and recommend it with pleasure.

Tuberculosis of the Female Genitalia and Peritoneum. By JOHN B. MURPHY, M. D. (*Chicago: 1903.*)

This is an elaborate presidential address delivered before the Chicago Surgical Society in October, 1903. In the first portion of the monograph, Murphy deals exhaustively with the avenues through which the organisms gain entrance to the pelvic structures. The literature on the subject is carefully reviewed. Tuberculosis of the vulva and vagina is interestingly discussed from the clinical and pathological standpoints. The chapter on tuberculosis of the cervix is full and most instructive. Consid-

erable space is allotted to tuberculosis of the body of the uterus, and Murphy sums up by saying, "The diagnosis in most cases must be cleared up by an examination of the uterine scrapings." We thoroughly agree with him in advocating complete removal of the uterus. He prefers the vaginal route, since by this avenue there is less danger of contaminating the peritoneum. Murphy thinks that the portion of the tube first involved is that within about half an inch of the uterus and that the lodgment at this point is due to extreme narrowing of the tube lumen. From several experiments Murphy found that tuberculous tissue introduced into the abdomen, produce lesions in the lower half of the abdomen, and in the few months intervening between the inoculation and the animal's death that neither the mucosa of the tubes nor that of the uterus showed any evidence of tuberculous involvement.

Excellent details of the clinical phenomena of cases of tuberculosis of the tubes are given and a very careful and conservative treatment recommended. Tuberculosis of the ovary is briefly and yet satisfactorily discussed.

Tuberculosis of the peritoneum is accorded a liberal consideration. The various modes of infection are outlined, especial emphasis being laid on the rôle played by tuberculous Fallopian tubes. These expell from time to time caseous material into the pelvis and occasion exacerbations of the tubercular peritonitis. Murphy thinks that primary tuberculosis of the appendix is frequently responsible for subsequent tubercular peritonitis. Peritonitides of this character are grouped as follows: (1) The disseminated exudative and non-confluent serous variety. (2) The nodular ulcerative or perforative variety. (3) The adhesive fibro-plastic cystic circumscribed abscess partition or obliterative variety. (4) Tubercular peritonitis with mixed infection.

Under treatment, Murphy says, "The surgical or medical treatment of tuberculosis of the peritoneum involves four propositions: (1) To remove or shut off the source of supply to the peritoneum of new tubercular debris. (2) To remove the products of the infective process from the peritoneum. (3) To increase the tissue proliferation for the encapsulation of the foci already present. (4) To avoid mixed infection.

After reviewing the results of others, Murphy shows his faith in operative interference by the following: "The value of operative intervention can no longer be said to be in question."

In the disseminated serous variety mere abdominal section is of little value. For success it is necessary to remove the original focus, which is likely to be a Fallopian tube, the appendix, or possibly a mesenteric gland. It is in this class of cases that the most gratifying results have been noted.

In the nodular ulcerative and perforative variety, and also in the adhesive form, the sphere of surgical interference is limited and is on the whole unpromising. Murphy lays especial stress on the dangers of producing fæcal fistula in these cases as the intestines are often intimately blended with the abdominal wall and are readily cut into as the peritoneum is being opened. Or, again, when gentle traction is made on adherent intestinal loops, they are liable to rupture.

In dealing with the mixed infection variety where circumscribed abscesses exist, or where general suppuration is present, he advises evacuation followed by closure without drainage. Drainage was abandoned on account of the uncontrollable and permanent purulent discharge that followed where the open treatment had been employed.

This contribution of Murphy's has entailed much labor, is of interest to the pathologist and contains many practical hints for the surgeon and general practitioner. It is worthy of a thorough perusal by every medical man.

The Surgical Diseases of the Genito-Urinary Organs. By E. L. Keyes, A. M., M. D., LL. D., and E. L. Keyes, Jr., A. B., M. D., Ph. D. With one hundred and seventy-four illustrations in the text and ten plates, eight of which are colored. (*New York and London: D. Appleton and Company, 1903.*)

This volume of 800 pages is a second revision of Van Buren and Keyes' Genito-Urinary Diseases with Syphilis, which was written some thirty-five years ago. Since the first appearance of this book the tendency has been to make it less venereal and more genito-urinary, hence the change in title. In the present edition syphilis has been entirely eliminated, as it is a genital disease only in its manner of attack. Gonorrhœa, however, although a venereal disease, has received the extended consideration which its overshadowing importance demands. It is so intimately associated with the inflammatory conditions of the urethra and so far-reaching in its effects that it merits the space and careful attention given it.

We hesitate to criticise the opinions of the authors based, as they are, on such wide and extensive personal experience. But on such important questions as the treatment of prostatic hypertrophy, ureteral catheterization and the use of the cystoscope we feel that their attitude is too conservative. In the treatment of prostatic hypertrophy in the class of cases suitable for a cautery operation we doubt very much if any who have had a considerable experience with the Bottini operation would admit the advantage claimed by the authors for Chetwood's operation.

We are very much surprised to find the indications for cystoscopy summarized as follows: (1) In tuberculosis of the bladder to decide a question of operation; (2) ureteral catheterization; (3) tumor, and (4) in obscure cases, for diagnosis. Just what is included under the last heading, obscure cases, will depend largely on the individual operator's interpretation of the term obscure, but in no way can it be interpreted to apply to cases of hypertrophy of the prostate. To quote, "Many surgeons constantly employ the cystoscope for the diagnosis of hypertrophy of the prostate, stone in the bladder and cystitis. I do not consider it a proper routine method of diagnosis for any of these conditions."

In our experience there is no method of examination so simple and giving data at once so accurate and indispensable in cases of hypertrophy of the prostate as cystoscopy. Indeed, we do not understand how a surgeon can intelligently perform any of the cautery operations without first making a careful cystoscopic examination of the prostatic orifice. And the same holds good for any operative interference with the prostate.

We are sorry the silk filiform bougies with steel followers and the Kollmann dilators have not found greater favor with the authors. We believe they deserve greater consideration than they have received.

But these are doubtless minor points about which there is at present a great variety of individual opinion. And they do not detract from a text-book which is easily the best we have in this branch of surgery. It is also the best book on the subject to put into the hands of students.

Diseases and Injuries of the Eyes, with their Medical and Surgical Treatment. By George Lawson, F. R. C. S. Eng., Surgeon Oculist-in-ordinary to her Majesty the late Queen Victoria; Consulting Surgeon to the Royal London Ophthalmic Hospital and to the Middlesex Hospital. Sixth Edition, with 249 illustrations. Revised and in great measure rewritten by Arnold Lawson, F. R. C. S. Eng., Assistant Surgeon to the Royal London Ophthalmic Hospital; Consulting Surgeon to the Paddington Green Children's Hospital, etc. (*London: Smith, Elder & Co., 15 Waterloo Place, 1903.*)

Eighteen years have elapsed since the last previous edition of this work was issued, and probably the majority of ophthalmologists practicing to-day are entirely unfamiliar with it, but those who do recall that it was a standard manual in its day, or who

have been in the habit of referring to it even later, regard it very highly because of the excellence of its practical advice on the treatment of the various eye affections. The son has done well to retain this distinctive feature.

A better illustration of the advances that have taken place in ophthalmology in the last two decades could scarcely be found than is afforded in a comparison of the fifth and sixth editions of this work. The volume of material has been multiplied three or four times and still the enlarged edition contains the concise, condensed form of the smaller. The increase consists of new subjects introduced, numerous new illustrations, and a new and broader treatment of old topics.

We can very heartily commend the book to all persons interested in a study of eye diseases, especially to the specialist as a reference book, on account of the broad and complete consideration of pathology and treatment. One feature that particularly pleases us is the attention given to errors of refraction. It is refreshing to see an English text-book treat this subject so well and we hope our European confreres may soon be following the good example. There are a few points in the chapter on hypermetropia that might be criticised, and there are evidences that the Americans are still leading in the amount of care and attention given to the correction of small errors, especially of an astigmatic nature. However, we need not push the criticism too hard, since we have evidence of a marked advance and the future is hopeful.

Any allusion to the differences between American and foreign practice reminds us that the book contains very slight reference to American work, almost ignoring it, in fact, and, by virtue of that fact, we miss some of the seemingly really important advances in ophthalmology. Neither do we find any mention of the newer remedies, such as protargol, argyrol, etc.

In the chapter on Diseases of the Lachrymal Apparatus no more attention is paid to the work of Bowman, a fellow-countryman of the author, or of Theobald than if they had never existed. The book is, throughout, rather the expression of the author's personality, and we like it for that fact, but the epoch-making discoveries I refer to should not be ruthlessly cast aside. We have shown elsewhere that the opposition to large probes is without any reasonable support, and we wonder at the persistent refusal even to try them.

Beyond these few slight adverse criticisms, we wish to record our endorsement of Lawson's work. It is a very valuable addition to our working library and a book that we shall certainly appeal to frequently. The publisher's part has been very well done and the paper upon which it is printed is particularly deserving of remark. H. O. R.

A System of Physiologic Therapeutics. Edited by S. SOLIS COHEN, A. M., M. D. Vol. X. Pneumotherapy, including Aërotherapy and Inhalation Methods and Therapy. By DR. PAUL LOUIS TISSIER, Chief-of-Clinic in the Faculty of Medicine of the University of Paris. Illustrated. (*Philadelphia: P. Blakiston's Son & Co., 1903.*)

The tenth volume of this system deals with the subject of "Pneumotherapy, including Aërotherapy and Inhalation Methods and Therapy."

In general the plan of this book agrees with that of the previous ones of the system, except that in the second part—that part dealing with inhalation methods—the application of various drugs by this method has been discussed at considerable length. While this constitutes a departure from the strict letter of the title of the system, nevertheless the value of the book has been materially increased, thereby, this chapter being one of the best of the book.

A large part of the book is taken up with a discussion of physiological questions. While much of this discussion is very interesting, the relation of some of it to the subject in hand is not very apparent, and not infrequently some of the best work on the topics discussed has been overlooked. Much space has been taken up with a description of the various kinds of complicated apparatus used for the application of condensed and rarefied air and combination of the two. On the other hand, the discussion of the therapeutic uses to which this apparatus is to be put occupies relatively a very small space and the conclusions are not always very clear. Some of the procedures are said to be beneficial for a remarkable number of conditions, the condensed air bath, for instance, being valuable in the treatment of many disorders—from heart-disease to toothache. As a multitude of remedies advised in a given disease raises skepticism in the student's mind as to the value of any, so a very extensive list of diseases in which a given procedure is said to be beneficial might tend to cause some undiscriminating readers to doubt its value in any.

Some curious statements are made in places as to the nature of the diseases treated, not always in accord with generally accepted views. For instance, the author says: "I consider emphysema as an attenuated, benign form of pulmonary tuberculosis, fibrous in its development from the beginning."

On the whole we cannot see that the author has made a very effectual plea for the more general employment of the procedures treated of in this book. A book one-fourth of the size could have contained all the matter of any importance which has a bearing on the subject treated, and, by careful editing and presenting the opinions and experiences of the author rather than those of a host of observers, it might have had much influence in bringing this somewhat neglected branch of therapeutics into greater repute among the medical profession.

Manual of Medicine. By THOMAS KIRKPATRICK MONRO, M. A., M. D., Professor of Medicine in St. Mungo's College. (*Philadelphia and New York: W. B. Saunders & Co.*)

The author makes no claim for originality in this text-book of medicine, except in the matter of size, stating that some of the English treatises are too small, others are too large for the average student even to attempt to master. This seems rather an inadequate reason, if one were needed, for the appearance of this book—as though the study of medicine were a matter of linear measure. A perusal of the book convinces one, however, that the average student, like the student of the multiplication table or catechism, will still have much to learn, even after he has mastered all of its pages.

Possibly there is need for such a book. If so, the author has accomplished his purpose very well. Very few errors are apparent, and the author has chosen his material wisely, omitting a discussion of all debatable points and of newer work not definitely confirmed. This may make the book of more value for those students who desire bare facts, but certainly offers very little attraction to those who look for stimulation to thinking.

The book is very comprehensive, treating not only of all conditions usually included in the text-books on medicine, but containing in addition a section on diseases of the skin, and also considering briefly those subjects usually treated of in text-books on physical diagnosis and clinical miscroscopy. It cannot be considered very satisfactory, however, to treat of the physical diagnosis of the chest (heart and lungs) in about thirty pages, and to condense a discussion on the urine, including methods of examination, into about thirteen pages. It is to be feared that such conciseness and omission of detail may induce in the student a similar attitude of mind in the application of his knowledge to practical purposes. The directions of the author also do not always guard against this possibility. For instance, the statement is made that in the practical study of the heart, as a rule, the outline of the relative cardiac dulness is not of much value and only the outline of absolute cardiac dulness need be carefully studied.

In order to reduce the size of the book the publishers have cut down the margins of the pages, and in other respects the book is not attractive.

To those students desiring at a moderate price a small book covering a great field this book will probably appeal.

A Manual of the Practice of Medicine, prepared especially for Students. By A. A. Stevens, A. M., M. D., Professor of Pathology, Woman's Medical College of Pennsylvania. Sixth revised edition, enlarged. Illustrated. (*Philadelphia, New York and London: W. B. Saunders & Co., 1903.*)

Most readers are familiar with the former editions of this small book. The good features of the former editions have been retained in the present sixth one and a considerable number of minor changes have been made to bring this book up to date.

The selection of material has been made with care, and the work of editing has been well done. The paragraphs on treatment are very concise, but the directions are quite clear and in general the treatment advised has a rational basis.

The make-up of the book is attractive, the typographical work being excellent, and the flexible binding used on former editions being retained.

This book has in the past been largely used by students and practitioners for purposes of review and in preparing for examinations, and it is probable that this will continue to be the main use made of it. The danger, however, that students will use such books as text-books and in place of more extensive reading is great and should be guarded against by teachers.

When properly employed, however, books of this kind are of considerable value, and this is the most valuable one of its class that we have seen.

Atlas of the External Diseases of the Eye. By Prof. Dr. O. Haab, of Zürich. Second edition, thoroughly revised. Edited, with additions, by G. E. De Schweinitz, A. M., M. D., Professor of Ophthalmology in the University of Pennsylvania. With 98 colored lithographic illustrations on 48 plates, and 232 pages of text. (*Philadelphia, New York, London: W. B. Saunders & Co., 1903.*)

It seems surprising that we have had for so many years works containing accurate pictures of morbid conditions of the inner structures of the eye without any accompanying illustrations of the external diseases of this organ. It is true that the external diseases of the eye, especially inflammations of the cornea, do not lend themselves easily to illustration, but there are many infections which can be portrayed with considerable suggestiveness and the pictures of these conditions will be found a substantial help by all who attempt to do any work in the field of ophthalmology. Haab's contribution is the best of its kind and the appearance of a second edition is an evidence not only of the need for such a work but that the earlier edition was weighed and found to contain material of high grade. For many years Zürich has been strong in ophthalmology and hardly a year passes without some fresh and valuable token that the science still flourishes there. Most of the first half of the work is taken up with practical descriptions of the external diseases of the eye and their treatment and of the usual methods of examination, matter to be found in all text-books on the eye. The plates are forty in number and they illustrate every disease which can be recognized with one's naked eye. The paintings are all from nature and accompanying each of them there is a history of the patient. Occasionally we find a condition somewhat idealized, but the painting is none the less suggestive and with very few exceptions the collection contains truthful reproductions of old and familiar scenes, and we have no hesitation in advising its purchase and in predicting for it a growing popularity.

BOOKS RECEIVED.

Mammalian Anatomy, with Special Reference to the Cat. By Alvin Davison, Ph. D. With over one hundred illustrations made by W. H. Reese, A. M., from the author's dissections. 1903. 8vo. 250 pages. P. Blakiston's Son & Company, Philadelphia.

A Treatise on Orthopedic Surgery. By Royal Whitman, M. D. Second edition, revised and enlarged. Illustrated with five hundred and seven engravings. 1903. 8vo. 848 pages. Lea Brothers & Company., Philadelphia and New York.

Functional Diagnosis of Kidney Disease. With Especial Reference to Renal Surgery Clinical Experimental Investigations. By Dr. Leopold Casper and Dr. Paul Friederich Richter. Translated by Dr. Robert C. Bryan and Dr. Henry L. Sanford. 1903. 12mo. 233 pages. P. Blakiston's Son & Company, Philadelphia.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Carl von Noorden. Authorized American edition translated under the direction of Boardman Reed, M. D. *Part IV. The Acid Autointoxication.* By Prof. Dr. Carl von Noorden and Dr. Mohr. 1903. 8vo. 80 pages. E. B. Treat & Company, New York.

Infectious Diseases; Their Etiology, Diagnosis, and Treatment. By G. H. Roger. Translated by M. S. Gabriel. Illustrated with forty-three engravings. 1903. 8vo. 874 pages. Lea Brothers & Company, New York and Philadelphia.

Clinical Talks on Minor Surgery. By James G. Mumford, M. D. 1903. 16mo. 115 pages. The Old Corner Book Store, Boston.

Elements of Surgical Diagnosis. By A. Pearce Gould, M. S. Lond., F. R. C. S. Eng. Third edition, revised and enlarged. 1903. 16mo. 607 pages. W. T. Keener & Company, Chicago.

The Medical Epitome Series Normal Histology. A Manual for Students and Practitioners. By John R. Wathen, A. B., M. D. Series edited by V. C. Pedersen, A. M., M. D. Illustrated with one hundred and fourteen engravings. 1903. 12mo. 229 pages. Lea Brothers & Company, Philadelphia and New York.

The Right to Life of the Unborn Child. A controversy between Professor Hector Treul, M. D., Reverend R. van Oppenraay, D. D., S. J., Professor Th. M. Vlaming, M. D., 1903. 12mo. 125 pages. Joseph F. Wagner, New York.

A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A. B., M. D. 1903. 12mo. 207 pages. Rowe Publishing Company, Chicago.

Philadelphia Hospital Reports. Volume 5, 1902. Edited by Herman B. Allyn, M. D. 1903. 8vo. 178 pages. Philadelphia.

Transactions of the American Surgical Association. Volume the twenty-first. Edited by Richard H. Harte, M. D. 1903 8vo. 630 pages. Printed for the Association, Philadelphia.

Medical and Surgical Reports of the Boston City Hospital. Fourteenth Series. Edited by Herbert L. Burrell, M. D., W. T. Councilman, M. D., and Charles F. Withington, M. D. 1903. 8vo. 178 pages. Published by the Trustees, Boston.

A Text-Book of Practical Gynecology. For Practitioners and Students. By D. Tod Gilliam, M. D. Illustrated with 350 engravings, a colored frontispiece, and 7 full-page half-tone plates. 1903. 8vo. 634 pages. F. A. Davis Company, Philadelphia.

The Lymphatics. General Anatomy of the Lymphatics, by G. Delamere. Special Study of the Lymphatics in Different Parts of the Body, by P. Poirier and B. Cunéo. Authorized English edition, translated and edited by Cecil H. Leaf. With 117 illustrations and diagrams. 1904. 8vo. 301 pages. W. T. Keener & Company, Chicago.

Atlas of the External Diseases of the Eye. Including a Brief Treatise on the Pathology and Treatment. By Prof. Dr. O. Haab, of Zürich. Authorized translation from the German. Second edition, revised. Edited by G. E. de Schweinitz, A. M., M. D. With 98 colored lithographic illustrations on 48 plates. 1903. 12mo. 232 pages. W. B. Saunders & Company, Philadelphia, New York, London.

The Anatomy of the Human Peritoneum and Abdominal Cavity. Considered from the Standpoint of Development and Comparative Anatomy. By George S. Huntington, M. A., M. D. Illustrated with 300 full-page plates containing 582 figures, many in colors. 1903. 4to. 292 pages. Lea Brothers & Company, Philadelphia and New York.

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The Blues (Splanchnic Neurasthenia). Causes and Cure. By Albert Abrams, A. M., M. D. (Heidelberg), F. R. M. S. Illustrated. 1904. 8vo. 140 pages. E. B. Treat & Company, New York.

Third Biennial Report of the Board of Control of State Institutions of Iowa. For the biennial period ending June 30, 1903. 8vo. 1085 pages. Des Moines.

Practical Medicine Series of Year Books. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly, under the general editorial charge of Gustavus P Head, M. D. *Volume III. The Eye, Ear, Nose and Throat.* Edited by Casey A. Wood, C. M., M. D., D. C. C., Albert H. An drews, M. D., Gustavus P. Head, M. D. December, 1903. 12mo. 332 pages. The Year Book Publishers, Chicago.

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International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and Other Topics of Interest to Students and Practitioners. Edited by A. O. J. Kelly, M. D. Volume IV. Thirteenth Series, 1904. 8vo. 321 pages. J. B. Lippincott Company, Philadelphia.

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Lectures on Diseases of the Nervous System. Second Series. Subjective Sensations of Sight and Sound, Abiotrophy, and Other Lectures. By Sir William R. Gowers, M. D., F. R. C. P., F. R. S. 1904. 8vo. 250 pages. P. Blackiston's Son and Company, Philadelphia.

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